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THE

MUSIC OF THE BIBLE

WITH AN ACCOUNT OF THE

Development of Modern Musical Instruments from Ancient Types

BY

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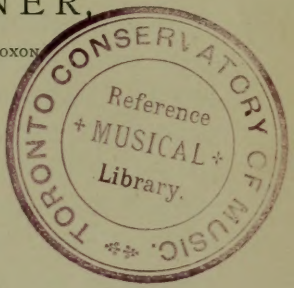
M.A., MUS. DOC., MAGD. COLL., OXON.



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PREFACE.

No apology is needed, I hope, for issuing in this form the substance of the series of articles which I contributed to the *Bible Educator*. Some of the statements which I brought forward in that work have received further confirmation by wider reading; but some others I have ventured to qualify or alter. Much new matter will be found here which I trust may be of interest to the general reader, if not of use to the professional.

I fully anticipate a criticism to the effect that such a subject as the development of musical instruments should rather have been allowed to stand alone than have been associated with Bible music. But I think all will admit that the study of the history of ancient nations, whether with reference to their arts, religion, conquests, or language, seems to gather and be concentrated round the Book of Books, and when once I began to treat of the comparative history of musical instruments, I felt that a few more words, tracing their growth up to our own times, would make this little work more complete and useful than if I should deal only with the sparse records of Hebrew music.

I have received, in all the philological portions of the

book, much valuable help from my friend ERNEST BUDGE (M.R.A.S.), of Christ's College, Cambridge; to whom also I am indebted for Appendixes II. and IV.

The transliteration of Hebrew words into our own tongue is always a difficult matter. I have uniformly spelt *kinnor* with a *k* instead of *c*, dreading lest readers should be tempted to pronounce it *sinnor*. The troublesome letter *ghain* has also been omitted from *ugab*. In other cases I hope the spelling will be found neither incorrect nor unpronounceable.

J. S.

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MUSIC OF THE BIBLE.

INTRODUCTION.

No art is exercising such a strong influence over the human race at the present time as the art of Music. It has become so thoroughly a part of our existence that we rarely pause to consider to what an extent we are, as it were, enveloped in its sweet sounds, or how irremediable its loss would be to us. As a natural result of this, much interest has of late years been shown in every research which might tend to throw some light on its early history. The various musical instruments depicted in sculpture, or on coins, or sometimes luckily found in ancient tombs, have been carefully examined, with excellent results. Also, the broad basis on which the study of History now stands, has allowed opportunities of comparing the music and musical instruments of ancient nations, and of classifying them into different families. It will be at once seen what important results must arise from this, for in company with customs, words, and even modes of thought, musical instruments may pass from one nation to another, whether their intercourse has been that of peaceful neighbours or of tyrannic foes.

But notwithstanding all that has been done towards elucidating the mysteries of the birth of Music, no precise data can be obtained on this point. The stories common among the ancient Greeks about the discovery of the lyre by

Mercury, formed of strings stretched across a tortoise-shell (*testudo*)[1]; of Orpheus, and his transmitting his knowledge of music to Thamyris and Linus; of Terpander, and his improvements in the art—are all very pretty, and sometimes also not a little amusing, when it is found that learned men find in them ample grounds for serious discussion; but as a matter of fact, nothing is known as to the origin of music. Nor is it a subject for regret that so lovely, so ethereal an art should hide its head in obscurity; it has come down to our time in rich profusion, like some noble stream, and all that we can discover, if we attempt to retrace its course, is that on all sides, and at all times, welling springs have found their way into its bosom, each of which has its claim to our gratitude as administering to our plenty, but of no one of which can we say, this is the fountain-head of our art. The origin of music is inseparable from the origin of language, and whatever views are held with regard to the one, will hold good of the other; but, without entering into any digression on this subject, it may be said that *singing* is really little else than a highly beautiful *speaking*. A recent writer[2] says—"A very important characteristic of ancient languages was rhythm. The more or less regular recurrence of intonations and of similar

[1] According to the Hymn to Hermes (at one time attributed to Homer), the god, "soon after his birth, found a mountain tortoise grazing near his grotto, on Mount Kyllene. He disembowelled it, took its shell, and, out of the back of the shell he formed the lyre. He cut two stalks of reed of equal length, and, boring the shell, he employed them as arms or sides (πήχεις) to the lyre. He stretched the skin of an ox over the shell. It was, perhaps, the inner skin, to cover the open part, and thus to give it a sort of leather or parchment front. Then he tied cross-bars of reed to the arms, and attached seven strings of sheep-gut to the cross-bars. After that, he tried the strings with a plectrum."—*Chappell's "History of Music,"* p. 29.

[2] Eugène Véron on Æsthetics. Translated by Armstrong. (Chapman and Hall.)

cadences constitutes for children and savages the most agreeable form of music. The more the rhythm is accentuated, the better they are pleased; they love not only its sound, but its movement also. . . . The most civilised nations cannot escape from this tyranny of rhythm. . . . Rhythm seems, indeed, to contain some general law, possessing power over almost all living things. One might say that rhythm is the dance of sound, as dancing is the rhythm of movement. The farther we go back into the past, the more marked and dominant is it found in language. It is certain that at one period of the development of humanity, rhythm constituted the only music known, and that it was even intertwined with language itself." It is true that the voice is modulated and regulated in singing by rules, the practice of which has now become a complicated art; but, on the other hand, is there not music, and that of the most touching kind, on many a speaker's lips—on those of the earnest preacher, the anxious mother, the loving friend? And this is not the less *music* because it has not been successfully analysed, or because its laws are not published cheaply in a tabulated form. May we not say, then, that vocal music would naturally grow out of sweet talk, and may we not give to vocal music priority of existence over instrumental? But, alas! the early history of the human race discloses more of mutual strife and bloodshed than of peace, and from the natural and indissoluble link between music and rhythm we soon find music, especially as practised on instruments of percussion, an ingredient of war. It would answer two purposes: instruments of brilliant tone, such as trumpets and horns, would excite and rouse the feelings, while drums and rattles would enforce the rhythmical stepping and close movement of large bodies of men. And, again, the known effect of music upon the emotions would soon enlist it to the cause of religion; and

music, therefore, seems amongst all nations to have been as much a part of worship as of war.

The division of the Music of the Bible into three kinds —namely, as used in worship, war, and social intercourse— naturally suggests itself; and it would be an exceedingly good division, if only there existed sufficient materials for its story. But, unfortunately direct information on the subject is most scanty; for often that which seems at first sight a plain statement of facts, will on examination turn out far otherwise. For instance, we are told that Jubal was "the father of such as handle the harp and the organ." This reads thus in the Lutheran version: "Und sein Bruder hiesz Jubal, von dem sind hergekommen die Geiger und Pfeifer" ("And his brother was named Jubal, from whom descended *fiddlers* and *pipers*"). On turning to the Septuagint version, we shall find that no less than three totally distinct words are used in different parts of the Bible to translate the word we render "organ."[1] We must, therefore, look to the nations with which the Jews came into contact as the best source of information. We shall soon in this manner find valuable matter. For instance, Laban is said to have regretted the suddenness of Jacob's departure, because it deprived him of the opportunity of sending him away with music. "Wherefore didst thou flee away secretly, and steal away from me; and didst not tell me, that I might have sent thee away with mirth, and with songs, with tabret and with harp?" (Gen. xxxi. 27). *Kinnor*, or *cinnor*, is the word here used for "harp," and it is the only stringed instrument mentioned in the Pentateuch. Laban being a Syrian, we shall be justified in believing this to be a Syrian instrument, and not, as sometimes stated, of Phœnician origin. This text

[1] ψαλτήριον, Gen. iv. 21; ψαλμός, Job. xxi. 12 and xxx. 31; ὄργανον, Ps. cl. 4.

also shows that music was used for home festivals. But it must not be expected that, as an art, music could reach a very high standard amongst nomadic tribes, whose roof was never more substantial than a tent, whose temple of worship was the canopy of heaven.

The intercourse between Abraham and the Canaanites in all probability influenced future Hebrew music. Then follows Jacob's residence with Laban, alluded to above, which probably caused his posterity to carry a certain amount of Syriac music, or musical instruments, into Egypt, But, again, a stay of four centuries in so civilised a country as Egypt must have largely added to their knowledge of the art; and it seems not unfair to suppose that whatever system of notation the Hebrews adopted was learnt from the Egyptians. The strong love of poetry amongst the Jews is shown by frequent allusions in Holy Scripture even as early as the Pentateuch; but where did they learn to set their inspired songs to tunes? In all probability in Egypt; and, unpleasant as it may sound to say so, the glorious song of Moses was most probably sung to some simple Egyptian chant, well known and popular. It may be said, "Why ascribe all the *invention* of the art to the neighbours of the Jews, and deny to the Jews the power of forming their own melodies and their own instruments?" The reply is simple —pastoral duties and a pastoral mode of life, as a matter of fact, do not tend to foster constructive art in such a manner as the concentration of highly-educated men in large cities; and whereas the Jews, during their stay in Egypt, could have but small opportunities of inventing or elaborating a system of music, the Egyptians themselves had, not only then, but for centuries previous to the immigration of the Hebrews, the most favourable opportunities. Their learning was notorious, and it is an accepted fact that music was a recognised branch of their learning. But, to continue: the

wandering in the wilderness could not conduce to artistic progress, nor did more favourable opportunities present themselves after the establishment of the Jews in the promised land under Joshua, for they then passed through some five centuries of almost constant warfare with neighbouring nations. And it must not be forgotten that Solomon had to employ foreign workmen for all delicate work, and probably, therefore, for the construction of musical instruments. We read, "And the king made of the almug trees pillars for the house of the Lord, and for the king's house, *harps also and psalteries for singers:* there came no such almug trees, nor were seen unto this day" (1 Kings x. 12). Then, again, after the time of Solomon the troubled state of divided Israel was most unsuited to the cultivation of native art; while, on the other hand, the constant intercourse of the Jews with the Assyrians, and their forced residence among them while in captivity, must have modified existing music, or have given it some fresh ingredients.

It may be said, therefore, on the whole, that the internal condition of the Jews offered at any time but a poor nursery for art, but that their external relations rendered an incorporation of the arts of their neighbours inevitable; and these neighbours were that Semitic race which after the deluge had spread itself on the borders of the Tigris and Euphrates, and had peopled Syria, Phœnicia, Arabia, Egypt, Chaldea, and Mesopotamia. It is, of course, possible to push this argument too far, and to deny that the Jews possessed any national music. This would be wrong, because it is more than probable that whatever they adopted from their neighbours would be moulded by them into a shape most pleasing to them, and in time would assume peculiarities of style which would distinguish it from its parent stock.

It might be supposed that much assistance in treating of the music of the Bible might be obtained from an examination of the music now in use in the synagogues of the Jews; but the most that could be discovered from such a source would be partial traditions of the music of the *second* Temple; and undoubtedly the music of the second Temple not only fell far short of that of the first in point of efficiency and number of executants, but was also tinctured with the foreign associations of the returning Jews. Such instruments as had been lately adopted would most likely be used on the restoration of their worship, and it is not improbable that the vocal music would be also modified. Some of those instruments might have been introduced, the Chaldean names of which appear in the book of Daniel. But this is not all: a comparison of the music used in modern synagogues shows that even since the dispersion of the nation their art has been influenced by that of the people amongst whom they have settled. An important fact bearing on this is noticed by Carl Engel (in his valuable work on National Music), namely, that "in the synagogal hymns of the Sephardic Jews, who were expelled from the Spanish Peninsula at the end of the fifteenth century, distinct traces of the characteristics of Moorish music are still preserved." The following important passage bearing on this subject is from the pen of the Rev. D. J. Sola:[1] "When the Sephardic ritual became fixed and generally established in Spain, and was enriched by the solemn hymns of Gabirol, Judah Ha-Levi, and other celebrated Hebrew poets, chants or melodies were composed or adapted to them, and were soon generally adopted. It would, indeed, have been most desirable that the sublime lays of our pious poets

[1] See p. 13 of this author's learned preface to the *Ancient Melodies of the Liturgy of the Spanish and Portuguese Jews.* (London, 1857.)

should have ever been found combined with equally sublime and sweet strains by devotionally inspired musical composers of our own nation. But this was not always practicable; and at a very early period it became necessary to sing many of these hymns to the popular melodies of the day; and in most printed editions we find directions prefixed to hymns replete with piety and devotion, that they are to be sung to the tune of "*Permetid, bella Amaryllis*" ("Permit, fair Amaryllis"), "*Tres colores in una*" ("Three colours in one"), "*Temprano naçes, Almendro*" ("Thou buddest soon, O Almond"), and similar ancient Spanish or Moorish songs—a practice no doubt very objectionable, for obvious reasons, and from which the better taste of the present age would shrink. It is, however, but fair to say that these adaptations, though in some degree unavoidable, did not pass without severe censure from pious and learned rabbis." Similarly, it will be found that in every case the modern music of the Jews varies remarkably according to the music of nations in which they have formed colonies, whether those colonies be in Germany, Holland, France, or Portugal. But it will be found that in many of the most carefully preserved melodies there is a decided cast of Asiatic tonality. If the traditions of the second Temple existed anywhere in a tolerably pure state, they might have been found amongst the descendants of those Jews who migrated to Egypt about 200 years before Christ, to avoid the tyranny of the Seleucides, and who built a temple near Heliopolis.

That there should be a sad lack of national monuments relating to the Jews is not surprising, when it is remembered that Jerusalem stood about seventeen sieges, each of which was accompanied by more or less destruction, and that, too, at the hands of victors who seemed to take a malicious delight in effacing the national characteristics of those they

conquered. So successful have they been, that there remains not one *Jewish* bas-relief to tell the shape of their musical instruments, and only on a few coins of late date drawings of instruments, of a not very intelligible character, are known to exist. This being the case, the reader will sometimes have to content himself with the opinions, often contradictory, of learned men.

But we ought, nevertheless, not to undervalue the study of what may perhaps be appropriately termed the *comparative anatomy* of musical instruments. For it is easy to discern in the records of history that such instruments have been undesignedly moulded into very clearly defined groups or classes, according to the uses for which they were intended, these uses varying, of course, with the national tastes and occupations of the races by whom they were adopted. Strong probability, sometimes almost approaching to certainty, may therefore be thus established as to the nature of a musical instrument, the actual description of which may be of the most scanty kind, the arguments pursued being on much the same method as that familiar to naturalists, who are not uncommonly able to give a fairly trustworthy account of the form and physiological construction of some bird or beast, of which only a few bones remain, dug out of some early stratum of the earth's surface. And, as even the habits of such extinct animals can often be gathered from a careful study of their natural environment, so, too, may the character and capabilities of a musical instrument be discovered by considering the occasions on which it is recorded to have been used.

We propose now to give a short account of every instrument mentioned in Holy Scripture, stating what is known as to its construction, origin, and uses. For this purpose we will divide them, as a modern orchestra would be divided, into string instruments, wind instruments,

and instruments of percussion; pointing out the relation they bear to kindred instruments of our own time. If this account of Hebrew instruments be followed by a notice of Hebrew vocal music, it is hoped that the reader will have gained some useful knowledge of the music of the Bible.

PART I.

CHAPTER I.

EARLY STRING INSTRUMENTS.—THE KINNOR.

THE first instrument mentioned in the Bible is the *kinnor*, translated "harp" in our version. Jubal was "the father of such as handle the *kinnor* and *ugab*" (Gen. iv. 21). Authorities are divided as to whether the *kinnor* was a harp or a lyre. There have been attempts to show that it was a trigon, or three-cornered harp, specimens of which are depicted on some Egyptian bas-reliefs, and which must have been known to the Romans and Greeks. Nicomachus mentions the trigon as having been adjusted by Pythagoras after discovering the ratios of consonant harmonics. The simplest forms of the trigon[1] would be as shown in Figs. 1, 2, and 3. But it is probable that one of the characteristics of the instrument was that there existed only two sides of wooden frame, the third side being formed by the longest string, as shown in the following illustrations (Figs. 4, 5, 6), which were copied from tombs at Thebes and Dekkeh.

It will be observed that the instrument is not placed upon the ground, but is held under the arm, or is rested on the shoulder (see Fig. 7).[2] The termination of one of the sides with the head of a bird (probably a

[1] As given by Blanchinus, "De tribus generibus instrumentorum musicæ veterum organicæ Dissertatio." (Romæ, 1742.)

[2] Taken from a Pompeian fresco, a copy of which is in the author's possession.

goose) would be forbidden among the Jews, who might not make an image of any animal or beast. The next illustration (Fig. 8) shows a very curious instrument in the museum at Florence.

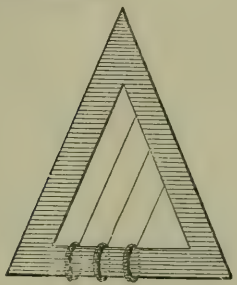
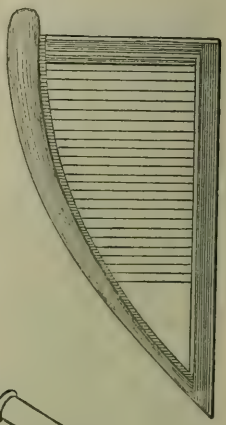


Fig. 1.



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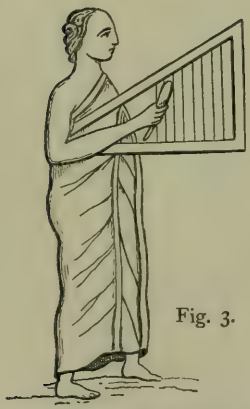

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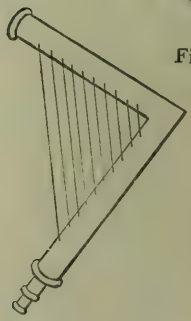

Fig. 6.

Some authors assert that this instrument had nine strings, others ten. The *kinnor* had, according to Fetis,[1] nine strings of camel-gut, but according to Dr. Jebb,[2] only

[1] *Histoire Générale de la Musique*, vol. i., p. 384.

[2] *A Literal Translation of the Psalms.* (Longmans.) Dissertation ii.

eight strings. The latter author grounds his decision on the fact that the *kinnor* is associated with the word *Sheminith* (see 1 Chron. xv. 21), just as *Alamoth* is with *nebel*, and

Fig. 4.

Fig. 5.

Fig. 7.

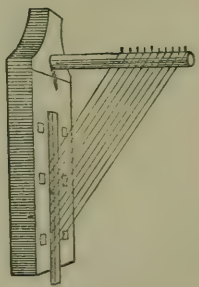

Fig. 8.

that Sheminith is undoubtedly connected with the number 8, being rendered in the Septuagint *ὑπὲρ τῆς ὀγδοής*, "on the eighth." Dr. Jebb thinks Josephus[1] right in saying that

[1] *ἡ μέν κινύρα δέκα χορδαῖς ἐξημμένη τύπτεται πλήκτρῳ ἡ δὲ νάβλα δώδεκα φθόγγους ἔχουσα, τοῖς δακτύλοις κρούεται.*

the *kinnor* was played by a *plectrum* (πλῆκτρον) or small staff of quill, bone, or ivory, which the ancients often used instead of the tips of their fingers; but Josephus is probably wrong in saying that the *kinnor* had ten strings and the *nebel* twelve, for the *kinnor* had not more than eight or nine strings. But David apparently used no plectrum—that is, if the words, "David took a harp (*kinnor*), and

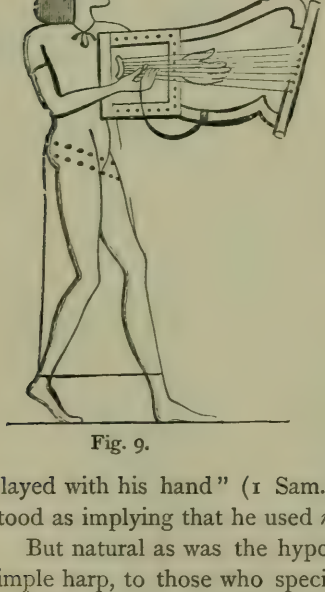

Fig. 9.

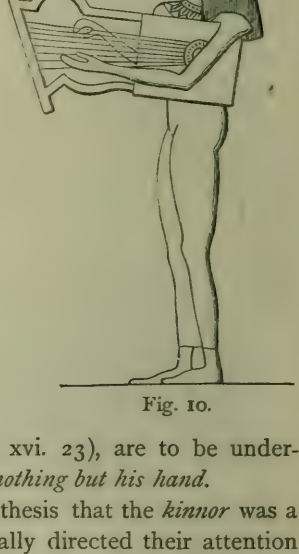

Fig. 10.

played with his hand" (1 Sam. xvi. 23), are to be understood as implying that he used *nothing but his hand.*

But natural as was the hypothesis that the *kinnor* was a simple harp, to those who specially directed their attention to the instruments of the early European nations, further knowledge of Egyptian and Assyrian antiquities led to the suggestion (by Pfeiffer, Winer, and other authors) that the *kinnor* was, after all, a sort of *guitar.* This idea was modified by Dr. Kitto, who brought much sound reasoning

forward to show that it was a *lyre*. Both notions have in all probability the elements of truth in them, for the lyre and guitar are closely allied; in the former the upper portion of the strings remains open, while in the latter the finger-board forms a back or strip of wood behind the strings for their whole length. If this idea be correct, the

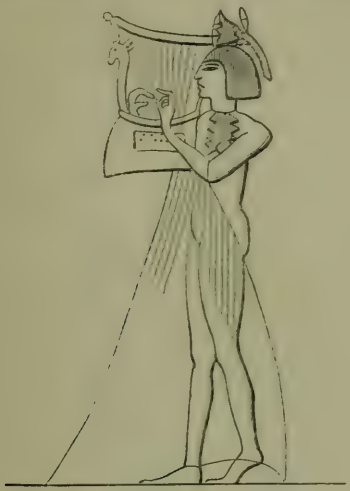

Fig. 11.

kinnor may have been very similar in form, perhaps even identical with, the instruments shown in Figs. 9, 10, 11.

It was sometimes played in an upright position, as shown in the above illustration (Fig. 11). The arguments in favour of the *kinnor* being a lyre are based upon certain other representations, the most important of which was discovered by Sir Gardner Wilkinson[1] in a tomb at Beni Hassan. It is a painting representing the arrival of a company of strangers in Egypt. The discoverer suggests

[1] *Manners and Customs of the Ancient Egyptians*, vol. ii., p. 296.

that these strangers are no less than Joseph's brethren. He describes them thus: "The first figure is an Egyptian scribe, who presents an account of their arrival to a person seated, the owner of the tomb, and one of the principal officers of the reigning Pharaoh. The next, also an Egyptian, ushers them into his presence; and two advance, bringing presents—the wild goat or ibex, and the gazelle, the productions of their country. Four men, carying bows and clubs, follow, leading an ass, on which two children are

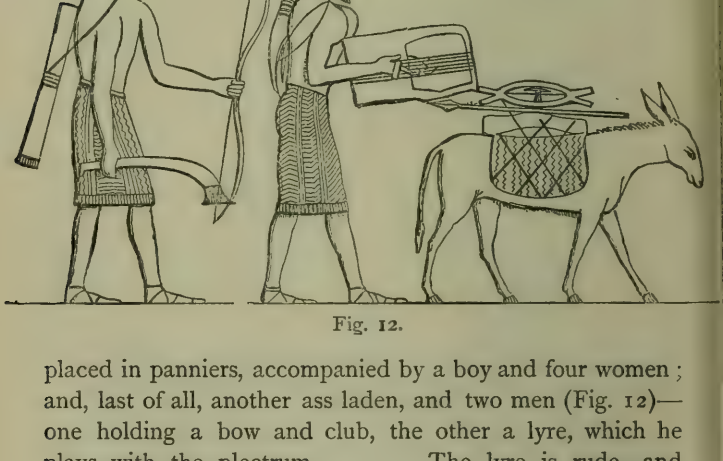

Fig. 12.

placed in panniers, accompanied by a boy and four women; and, last of all, another ass laden, and two men (Fig. 12)—one holding a bow and club, the other a lyre, which he plays with the plectrum. . . . The lyre is rude, and differs a little in form from those generally used in Egypt."

The authenticity of the above picture, as representing the arrival of the sons of Jacob, would set the question of the shape of the *kinnor* at rest for ever; but, unfortunately, it remains *only a probability*.

The other representation which has been brought

forward as evidence as to the shape of the *kinnor* is a bas-relief in the British Museum, on which is shown an Assyrian in charge of captives who are playing on lyres (Fig. 13). If Layard is right in supposing these to be *Jewish* captives,

Fig. 13.

it is certain that the *kinnor* was a lyre, because it was their *kinnors* which they mournfully hung up in the trees overhanging the "rivers of Babylon." "We hanged our *kinnors* upon the willows in the midst thereof" (Ps. cxxxvii. 2).

But M. Fetis gives very good reasons for believing that these captives are not Jews, but Barabras or Berbers, for they are, he says, performing on the *kissar*, or Ethiopian lyre. Here is a *kissar* (Fig. 14). This illustration shows one of the specimens given by the Viceroy of Egypt to the South

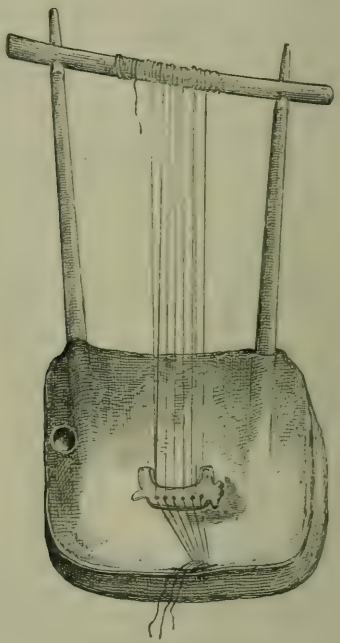

Fig. 14.

Kensington Museum. It has strings of camel-gut (as had also the *kinnor*), and a plectrum made of horn is used by itself, or with the fingers, or alternately, by the player. Engel says that the *kissar* is certainly one of the most ancient string instruments known.

Considering the great likeness between the outline of the *kissar* and the *kinnors* in some of the illustrations, it is

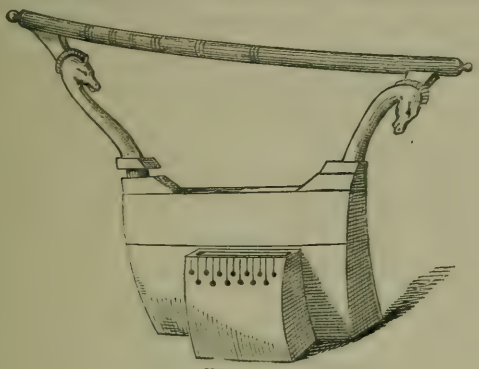

Fig. 15.

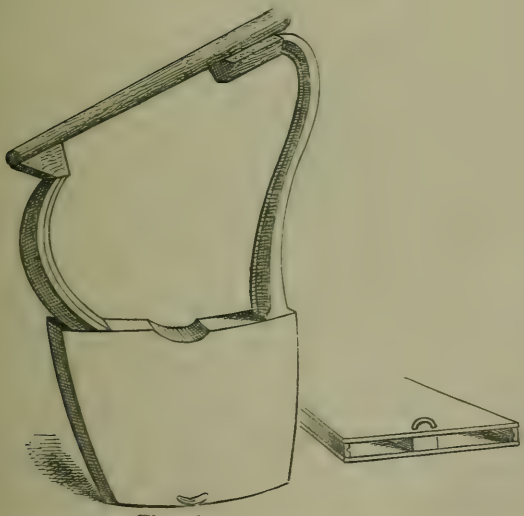

Fig. 16.

not surprising that some authors have confused them. There is, however, one more reason why they should not

be *kinnors* in Fig. 13—namely, the outer part of the framework is terminated at each end with the head of a bird or snake, which, as has been before remarked, would not be found on Jewish instruments.

Two very elegant Egyptian lyres are depicted on p. 19—one from the Leyden collection, the other from that at Berlin (Figs. 15, 16).

The *kinnor* was made of wood—David made it of *berosh*, but it is recorded that Solomon made some of *almug* wood for use in the Temple (1 Kings x. 12). Whatever be the exact wood signified by *almug*, the value of it was evidently very great.[1] The *kinnor* was one of the instruments mentioned by Laban the Syrian, as before noticed, a fact which goes far to prove its Syrian origin, although it seems to have been considered Phœnician by some of the ancients. The name is traced to a Syrian root—*kinroth*. The instrument was used on joyous occasions—on the bringing back of the ark (1 Chron. xvi. 5), the account of which shows the importance attached to proficiency on the part of the performers. "And he appointed certain of the Levites to minister before the ark of the Lord, and to record, and to thank the Lord God of Israel . . . Jeiel with psalteries and *kinnors;* but Asaph made a sound with cymbals; Benaiah also and Jahaziel the priests with trumpets continually before the ark of the covenant of God." Again, in 1 Chron. xxv. 3, the *kinnor* was ordered to be used by high and important families, as an accompaniment to their prophecy. The sons of Jeduthun are mentioned as prophesying with a *kinnor*. It was also the instrument carried by wandering female minstrels—Bayaderes—whose character was bad, if one may judge

[1] Josephus speaks of *kinnors* made of *electrum* (ἤλεκτρον), a mixed metal, not *amber*—a meaning this word also had. Probably the pegs only or other small details were made of this material. See note, p. 32.

from the allusion to them in Isa. xxiii. 16, where the prophet utters thoughts of indignant irony against Tyre. "Take a *kinnor*, go about the city, thou harlot that hast been forgotten; make sweet melody, sing many songs, that thou mayest be remembered." The people under Jehoshaphat, returning with joy to Jerusalem, after overcoming the Moabites, made joyful sounds "with psalteries and *kinnors* and trumpets" (2 Chron. xx. 28). The carrying of the *kinnor* by the captives in Babylon has before been alluded

Fig. 17.

to. It was also the instrument which, touched by the hand of the youthful and God-beloved David, drove away the wicked spirit of Saul: "And it came to pass, when the evil spirit from God was upon Saul, that David took a *kinnor*, and played with his hand: so Saul was refreshed, and was well, and the evil spirit departed from him" (1 Sam. xvi. 23).

The reader will by this time have balanced the probabilities as to the nature and construction of the *kinnor;* and most likely he will be led to think that it was either a guitar or lyre, a belief which seems to be gaining ground,

on account of the aptitude of such instruments for the uses to which the *kinnor* was devoted.

As there is often much confusion amongst non-musicians as to the real distinction between a lyre and a lute (or a guitar) two figures are appended, one (Fig. 17) showing a youth playing on a lyre, the other (Fig. 18) showing a man playing on a lute. From these illustrations it will be dis-

Fig. 18.

tinctly understood that there is nothing behind the upper portion of the strings of a lyre ; while, on the contrary, the strings of guitars and lutes are carried upwards beyond the body or *resonance-box*, over a piece of wood called the *neck*, on which is fastened the smooth piece of wood called the *finger-board*, because on to its surface the fingers press the strings when playing. It will be observed that a guitar and lute only vary with regard to the shape or length of the body and neck ; both instruments are of one family.

CHAPTER II.

STRING INSTRUMENTS (*continued*).—THE NEBEL AND NEBEL-AZOR.

THIS instrument will naturally present itself for our consideration after the *kinnor*, not only because it seems from all accounts to have been an instrument of a more elaborated character, and consequently of greater capabilities than the *kinnor*, both as to tone and pitch, but also because it appears in the Bible later chronologically. It is not mentioned until 1 Sam. x. 5. This fact seems to add weight to the opinion that it was of Phœnician origin, inasmuch as the intercourse between Phœnicia and Israel was not very close until about that period. It is called *Sidonian* by the poet quoted by Athenæus, lib. iv., c. 4—

"Οὔτε Σιδωνίου ναβλα
λαρυγγόφωνος ἐκκεχορδῶται τύπος."

In the Psalms and Nehemiah it is translated by ψαλτήριον ("psaltery"), with the exception of Ps. lxxi. 22, "I will also praise thee with the *psaltery*, even thy truth, O my God," where the word is ψαλμός; and also of Ps. lxxxi. 2, "Take a *psalm*, bring hither the tabret," where the Greek is κιθάρα. With regard to the other places in Holy Scripture where it is mentioned, the Septuagint generally has it as ναβλίον, νάβλα, νάβλη, ναύλα, or νάβλας. As would be expected, the Latin forms are *nablium*, *nablum*, or *nabla*. In speaking of the *kinnor*, it was stated that that instrument was probably either a lyre or guitar; and those who assumed that the *kinnor* was the lyre, would imagine the *nebel* was

the harp. Hence certain writers, amongst them Jerome, Cassiodorus, Isidorus, have believed the *nebel* to be of that simple form of harps, describing a mere Δ shape, which were given in Figs. 1 to 8. But on the other hand it must not be overlooked that the harp, like every other musical instrument, was undoubtedly improved from time to time, and the very fact of the comparative lateness of the allusion to the *nebel* in the Bible would suggest that it was of a somewhat more highly developed construction than that hinted at above. As regards simple and early forms of harps, some writers have laid great stress on the fact that the hollow resonance-box was held uppermost, and have in this way drawn a contrast between the harp and the guitar family. But this resolves itself into the plain question of the position in which the ancients held their harps when playing. That it was often different to our mode there can be no doubt from such representations as Fig. 19, which is copied from a Greek vase in the royal collection at Munich, and which represents a female playing on a harp, having the resonance-box leaning against her shoulder. See also Fig. 7, p. 13.

But the most noticeable distinction between ancient and modern harps seems to be the almost universal absence of a third side to the wooden framework of the former. This will be easily observed by glancing at the various illustrations of harps which have been and which will be given. This third side forms a very important feature in more modern instruments, and not only adds to the strength of the instrument, but also allows the strings to be drawn to a greater tension than could otherwise be the case. In fact, it seems difficult to believe how the woodwork, when consisting only of two sides, could stand the strain upon it when the strings were tuned. To those who have not given attention to the subject, this tension seems almost in-

credible. In the case of a grand pianoforte, which contains more strings than any other instrument in use, the tension,

Fig. 19.

it is calculated, is fifteen or sixteen tons.[1] The third side

[1] To the kindness of Mr. G. T. Rose, of Messrs. Broadwood, I am indebted for the fact that when two pianofortes exhibited by that eminent firm in the Exhibition of 1862 were tested with reference to this point, the tension of one was 15 tons 9 cwt., of the other, 16 tons 11 cwt., both being tuned to concert pitch. The greater weight

of a harp is far from spoiling its appearance. The harp shown in Fig. 20 is an ancient Irish harp. One preserved in Trinity College, Dublin, is popularly believed to have belonged to the famous Brian Boiroimhe, who ascended

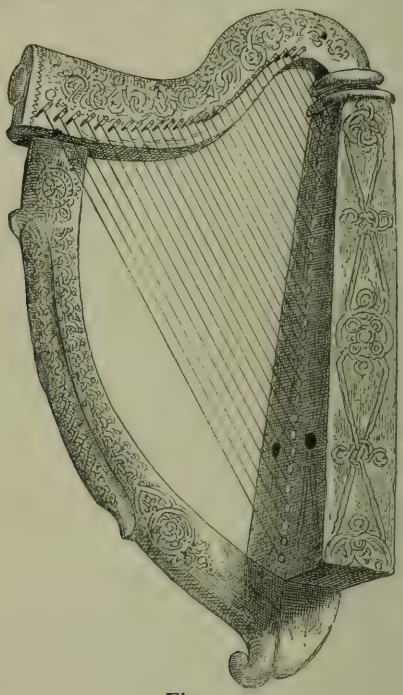

Fig. 20.

his throne A.D. 1001. But this tradition has been ably controverted.[1] The illustration which we give here was

representing the tension of the latter instrument is accounted for by its being of a rather larger size ; of two strings, equal in other dimensions, but differing in length, the longer will of course require a greater weight than the shorter, in order to raise it to the *same* pitch.

[1] See Stoke's Life of Dr. Petrie, p. 318.

taken, by the kind permission of the authorities of the South Kensington Museum, from the fine plaster cast in their possession.

The word *nebel* is by some traced to a root signifying a "rounded vase," or "leather bottle." If this derivation be correct, we can imagine that the instrument was conspicuous for the shape of one of its sides, if it had two sides; or if it were curvilinear, from the form of the hollow framework. It is quite possible that it might have been like those delineated in Figs. 23, 24 and 25.

But it is nearly always dangerous to argue from the derivation of names of instruments. For instance, what could the musical historian of a thousand years hence gather of the construction of a harmonium, seraphine, accordion, or euphonium, from the derivation of their respective names? or, how much from the word "pianoforte," the "soft-loud!" Some have carried this misguiding principle so far as to say that because *nebel* was derived from "rounded vase" or "leather bottle," that it would therefore answer the description of a *bagpipe!* This is, at least, an ingenious theory, but fortunately a well-defined title is given to the bagpipe (on the subject of which more will be said by-and-by), namely, *symphonia*, which renders this suggestion unworthy of consideration.

This is not the only theory as to the nature of a *nebel* which has been hazarded. Although it seems almost certain that it was a harp, some have suggested that it was a kind of guitar. But there is one very strong argument against this assumption that the *nebel* belonged to the family of guitars; it is this, that whereas the *nebel* is not unfrequently mentioned in Roman and Greek authors, instruments with long necks seem to have been unknown to them, or at most, to have been only known to them through actual specimens, or representations of them in sculpture, which had been

captured and carried home.[1] But there is indisputable proof that the Egyptians possessed such instruments, and Fig. 21 shows two women dancing to their own performance on such long-necked guitars.[2]

The "necks" seem disproportionately long in these

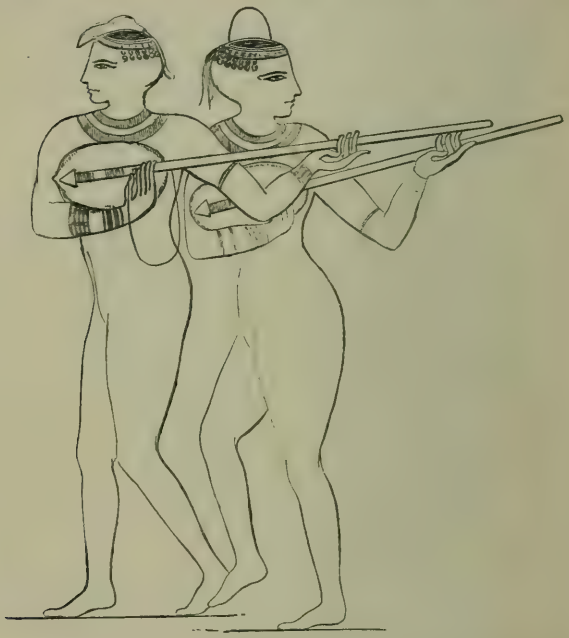

Fig. 21.

examples, twice or three times the length of the body or

[1] The kithara of the Greeks, it should be remembered, was in its construction a small *lyre*, not a guitar, although its name is so closely allied to that of the latter.

[2] This illustration is copied from an original sketch taken near Thebes by Lionel Muirhead, Esq., who kindly presented it to the author.

resonance-box. But if Italian instruments of this class, the *lutes* of the sixteenth and seventeenth centuries, be examined, it will be found that this relative proportion is not uncommon. The great importance of these Egyptian lutes or guitars, with reference to the progress of the science as well as the art of music, must be our excuse for a slight digression. It must have been known to the players on these ancient instruments that their fingers had always to squeeze down or "stop" the strings at some definite place, in order to produce certain intervals.[1] These distances were no doubt measured, and compared with each other, and with the whole length of the string. Thus indeed would the first foundation of the science of acoustics be laid, with all its interesting and important bearing on the art of music. And, in order that the choice of the position of the finger should be found by the performer with greater certainty, *frets* were invented. Frets were originally pieces of gut (in the Egyptian instruments of camel-gut), tied round the neck, and so forming *ridges* on the finger-board, at those places where the pressure of the fingers would cut off so much of the strings as should allow the vibrating portions to produce the successive notes of the scale. Thus, no doubt, the primary object of using frets was, to secure a true production of the scale then in use, and at the same time, to shorten and simplify the labour of the young student. But they had, later in their history, when made of ebony or ivory, another important function. If the fingers of a grown man be placed side by side on the strings of a guitar, it will usually happen that they cover more space than the strings, or in other words, that there is not room for them in a straight line, each finger on a string. But the ridge made by a fret enables the performer to draw

[1] See also the account of the Tamboura, in Engel's *Music of the most Ancient Nations*, pp. 52—57.

his fingers a little behind each other and yet play such a chord in tune. This will be understood by noticing the position of the tips of the fingers in Fig. 22. Mr. Chappell states[1] that the remains of frets were distinctly visible on some instruments found in an Egyptian tomb.

With regard to the possible relation of the *kinnor* to these long-necked instruments, it may unhesitatingly be said

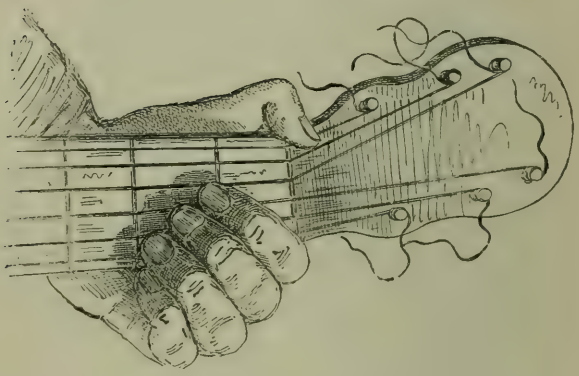

Fig. 22.

that it was probably less long in the neck, but having a somewhat larger resonance-box. The portability of the *kinnor*, to which its lengthened existence was greatly due, would certainly militate against the idea of its being constructed with three or four feet of fragile neck. Assuming, then, that these interesting instruments were not identical

[1] *History of Music*, p. 44.

with the *kinnor*, nor the *nebel*, in the former case because of their fragile form, in the latter because they were unknown to nations who were familiar with the *nebel*, we are led to the conclusion that the *nebel* itself was the veritable *harp* of the Hebrews. It could not have been large, because,

Fig. 23.

as will be noticed hereafter, it is so frequently mentioned in the Bible as being carried in processions.

The Egyptians and Assyrians had harps of moderate size, as shown in Figs. 23, 24, and 25.

Very probably the nebel had a form similar to the harp in Fig. 24, but with a somewhat more rapid curve. It would in this way be rendered more portable.

Before noticing some of the most important passages in the Bible in which *nebels* are mentioned, it is necessary to point out that the English translators render *nebel* (apparently without any special reason) by no less than four different words : (1) Psaltery, (2) Psalm, (3) Lute, (4) Viol. The first of these is by far the most common in the

Fig. 24.

authorised version, and is no doubt the most correct translation if the word be understood in its true sense as a *portable harp*.

Nebels, like *kinnors*, were made of fir-wood, and afterwards of almug.[1] Samuel told the newly-anointed king

[1] Almug, or algum, perhaps the red *sandal-wood* of India. See *Plants of the Bible*, by Sir Joseph Hooker. (Spottiswoode's Sunday School Teachers' Bible.)

Saul that he would meet "a company of prophets coming down from the high place with a *nebel*" and other musical instruments. And afterwards "David and all the house of Israel played before the Lord on all manner of instruments made of fir-wood, even on *kinnors* and on *nebels*," &c. On the happy event of the fetching of the ark from Kirjath-jearim, "David and all Israel played before God with all their might" on *kinnors*, *nebels*, and timbrels. In 1 Chron. xv.

Fig. 25

the names of the players on *nebels* are carefully recorded. It is evident that David himself was as proficient on the *nebel* as on the *kinnor*, and that he set aside special players for special instruments (1 Chron. xxv. 1, &c.). In the Book of Psalms frequent mention is made of the *nebel* (Ps. xxxiii. 2; lvii. 8; lxxi. 22; lxxxi. 2; xcii. 3; cviii. 2; cxliv. 9; cl. 3). It was not restricted in its use to religious ceremonies: Isaiah complains, "The *kinnor*, and the *nebel*,[1]

[1] Here translated *viol*.

the tabret, and pipe, are in their feasts" (Isa. v. 12); and similarly Amos writes, "Take thou away from me the noise of thy song; for I will not hear the melody of thy *nebels*"[1] (Amos v. 23), and he prophesies woe on those that "lie on beds of ivory," "eat lambs out of the flock," "drink wine in bowls," and "chant to the sounds of the

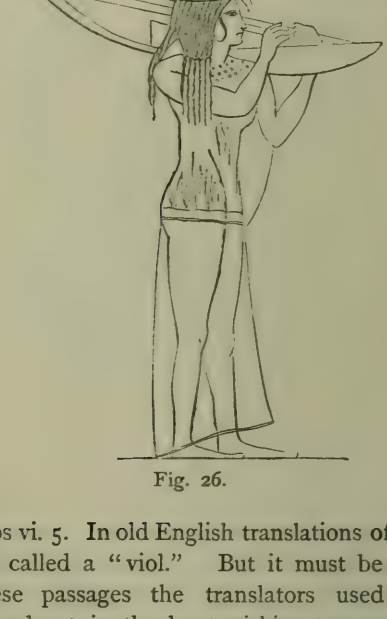

Fig. 26.

nebel."[1] Amos vi. 5. In old English translations of Ps. lxxxi. 2 the *nebel* is called a "viol." But it must be understood that in these passages the translators used the word carelessly, and not in the least wishing to suggest that the Hebrews had an instrument commonly played with a bow.

It is remarkable that the *nebel* is frequently mentioned in conjunction with some other musical instrument: for

[1] Here translated *viol*.

instance, with the *toph* (tambour), *shophar* (trumpet), &c. It may not be unfair to argue from this that its tones were deep and heavy, and were best adapted to form the groundwork of other combinations of various qualities and pitch.

The instrument shown in Fig. 26 seems to have been the link between the harp and guitar family, and as such is interesting.

Fig. 27.

The negro harp, or *nanga* (Fig. 27), is probably of great antiquity and to this day retains its original form, midway between a harp and guitar.

This remarkable instrument seems almost to suggest that *all* string-instruments may have been evolved from one type, namely, strings stretched across a bent stick, as originally suggested to our earliest forefathers by their hunting-bows. But of this we shall speak later on.

A very peculiar form of small harp is shown in Fig. 28, which is copied from an Assyrian stone in the British

Museum. Carl Engel, whose opinions are nearly always most trustworthy, seems in this case to have somewhat ventured on a mere speculation when he names this the *azor*, a word about which we shall next speak. The *plectrum* in the player's right hand is very evident; and also

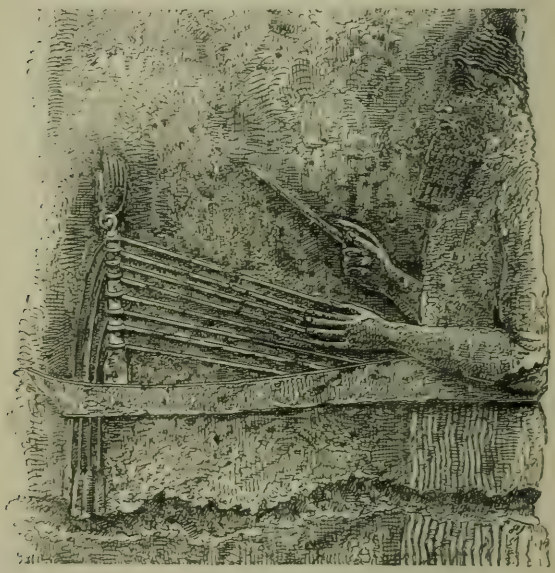

Fig. 28.

the curious termination of one of the sides in the form of a hand, perhaps used for holding the music, as is a small brass lyre or other contrivance in our modern military instruments.

With *nebel* is often associated the word *azor*, which is traced to a root signifying *ten*, and which has therefore been rendered in the Septuagint by ἐν δεκαχόρδῳ or as ψαλτήριον

δεκάχορδον (*psalterium decem chordarum*, or, *in dechachordo psalterio* in the Vulgate). In the Chaldee, Syriac, and Arabic versions also are found words implying the existence of ten strings in the *nebel-azor*.

The word *azor* may therefore be considered as qualifying or describing the special kind of *nebel* to be used, much in the same way as we now speak of a *trichord* pianoforte. It is in our English version always rendered by the words "ten-stringed." In Ps. cxliv. 9 the associated word *nebel* is wrongly translated *lute* instead of *harp*, in the Prayer-book version.

CHAPTER III.

STRING INSTRUMENTS (*continued*).—SABECA.

Sabeca is one of the instruments mentioned as being used in the well-known band of Nebuchadnezzar, as described in Dan. iii. 5. It was, therefore, not a Hebrew but a Babylonish instrument. It is most unfortunately translated "sackbut" in our version. This is to be regretted, because not only does sackbut possess no relation whatever to *sabeca*, but also it is itself a word the meaning and application of which is surrounded with much obscurity. The sackbut of Europe was certainly a kind of bass trumpet, in fact, a *trombone*. The idea of having a sliding tube inside a trumpet, so that its length could be altered in order to produce different sounds, and consequently different series of overtones, seems to have existed in very early times. The Chinese, whose conservatism in art throws an air of antiquity over even their modern productions, possess instruments of this class. In chap. viii. will be found illustrations of some of these Chinese trumpets which the player has the power of shortening or elongating at will. This would be the simplest form of sackbut or trombone. But, although we have before this given warning of the danger likely to arise from attempting to describe instruments from the derivation of their names, it is impossible to disregard that meaning when it is very obvious and almost undisputed. Now the root *sac*, signifying a pouch or bag, runs through

a vast number of languages—Hebrew, Arabic, and most of the European languages dead or now used. There is also, according to some, a root *boog* in Arabic, and *buk* in Hebrew, meaning a "trumpet" or "pipe." There is a great temptation, therefore, to jump to the conclusion that a sackbut must have been a *bagpipe*, especially as the German name for a bagpipe is *Sackpfeife*, which looks, and is, a very near relation to sackbut; and, moreover, it seems difficult to account for the application of such a term as *bag-trumpet* to a trombone, an instrument which is but very slightly, if at all, unlike a trumpet in the general form of its outline. The fact, however, remains unshaken that the European sackbut *was* a trombone, the word being used in the same sense in many languages, as, for instance, in old French *saqueboute*, and in Italian, *sacabuche*. The reader must forgive this digression on a word which, as has been remarked, ought not to have found its way into our translation of the Book of Daniel. The *sabeca*, then, which is *not* a sackbut, is generally identified with the σάμβυξ or σαμβύκη, *sambuca*, a harp known to the Greeks and Romans as an ingredient of Oriental luxury. They were evidently played upon by men as well as by women, as a player on the *sambuca* is a σαμβυκιστής or σαμβυκίστρια, *sambucistus* or *sambucistria*. But, granting that the *sabeca* was a *sambuca*, the question is, what was a *sambuca?* Two answers are given. One, that it was a very small harp of high pitch; the other, that it was a large harp with a great many strings. Both statements may be true of different periods of its existence. That the term was once applied to a small *trigon* (possibly when made of *elder-wood*, sambucus) is unquestionable; but there are also authors who have identified it with many instruments of a far more important development. It is more probable, therefore, that it was a large and powerful harp, of a rich quality of tone.

Some have thought it very similar to, if not identical with, the great Egyptian harp, and have considered the next illustrations (Figs. 29, 30) as representations of it.[1]

It will be well, perhaps, to state here what were the instruments mentioned in Dan. iii. 5, 7, 10, 15. They were (1) *keren*, the cow-horn (*σάλπιγξ*); (2) *mashrokitha*, pan's-pipes or small organ (*σῦριγξ*); (3) *kithara*, the lyre, or guitar (*κιθάρα*); (4) *sabeca*, the large harp (*σαμβύκη*); (5) *psanterin*, the dulcimer (*ψαλτήριον*); (6) *symphonia*, the

Fig. 29.

Fig. 30.

bag-pipe (*συμφωνία*). In the succeeding chapters an account of each of these instruments will be found.

PSANTERIN.

The consideration of this instrument will lead us into much that is interesting. The *psanterin*, *pesanterin*, or *phsanterin* (Dan. iii. 5, 7, 10, 15), has been translated in the Septuagint

[1] For other examples of such instruments the reader is referred to the Appendix to F. von Drieberg's *Wörterbuch der Griechischen Musik.* (Berlin, 1835.)

by the word ψαλτήριον (*psalterion*), *psalterium*, and although rendered "psaltery" in the English version, in all probability is the *dulcimer*. Perhaps no instrument has undergone less changes, or been of more wide-spread use, than the dulcimer. When, therefore, in our own villages we have seen the itinerant rustic musician place one on a table or stool and rap out a merry tune, we have really seen an exact counterpart of the instrument which was used in that terrible ordeal when the true God-worshippers had, at the peril of a fiery death, to pronounce their sublime belief in an unseen God, in opposition to the grovelling veneration of wood, stone, or gold; and when they boldly stood forth, a mere handful of righteous men, in the midst of a mighty idolatrous nation. One can hardly realise the awfulness of the scene, the intense anxiety on all faces, when, as the music broke forth, a signal for all to bend to the golden image, those three children stood unmoved, upright. When the sounds of harps, trumpets, and bagpipes gathered on the ear, to which these simple dulcimers added their share, how every eye must have been strained to catch a glimpse of those strange believers in the Unseen!

The custom of causing a loud crash of musical sounds to accompany any tragic scene has survived amongst many savage nations, torture and executions being not unfrequently accompanied by the noisiest attainable music.

It must be carefully borne in mind that the word "psaltery" is generally used as a translation of *nebel*, but no confusion need arise if it be remembered that mention of the *psanterin* is *only* to be found in Dan. iii. 5, 7, 10, 15. That the word "psaltery" should have been somewhat loosely used by the learned translators of the Bible is not surprising when we remember that the verb ψάλλω (*psallo*) signifies "to play upon a harp or lute," that ψάλτης (*psaltes*) is a male harpist, and ψάλτρια (*psaltria*) a female harpist.

And, moreover, so thoroughly is this class of words connected with harp or lute playing, that the very title of the Book of "Psalms" is given to it because it is a collection of songs to be sung to the accompaniment of a harp or lute. And still more, in ecclesiastical Latin *psallere* not unfrequently means "to sing the Psalms of David." *Psanterin* is unquestionably connected with the Chaldee *santeer;* but Villoteau, quoted by Fetis, goes on to say that the Egyptians would affix to it the article *pi*, making it *pisanteer;* and, again, that the Assyrians would suffix *in*, making the whole *pisanterin;* whence *psanterin* or *phsanterin*. Villoteau is, however, wrong, for on the authority of a sound Semitic scholar I am enabled to say that there is no Assyrian termination *in*, and that in the transfer of the word from the Greek to the *Chaldee*, *l* and *n* would be interchanged, and the termination *ion* would either be converted into *ĭn* or be dropped out altogether; also as the compound letter *ps* (ψ) is not represented in Arabic, the word would become santerin or santeer, perhaps more properly written *santyr*. The mention, in the above-named quotation from the Book of Daniel, of several other instruments whose Chaldee names have a very similar sound to their Greek translations—namely, *keren* (κέρας), cornet; *kithros* (κιθάρα), harp; and especially *symphonia* (συμφωνία), bag-pipe—forces us to believe that these names were actually borrowed from the Greek. The intercourse between Asia and Greece, through Phœnicia, would be sufficient to account for this. But, on the other hand, it seems very remarkable, if the above supposition be correct, that the *orchestra* (as we should term it) on such an important ceremony in Babylon should consist entirely of *foreign* instruments. The arguments on both sides are to be found in many of our best critical commentaries on the Bible.

The word *psalterion* is, as before remarked, formed from

psallo, which is a strengthened form of ψάω (*psao*), which signifies "to touch on the surface, stroke." To many of our readers an apology may be necessary for entering into such well-known details; but it is felt that to some, into whose hands this little book may chance to come, such information may not be uninteresting or useless. A word derived from this ψάω has been aptly used for the *twitch* which a carpenter gives to a coloured or chalked string when he wishes it to leave a mark. This is highly suggestive of the action of lute or harp playing; it is not strange, therefore, that when used in a musical sense, the word should imply *plucking with the fingers*, as opposed to striking with a *plectrum* or *style*, which latter was as common or more common a practice among the ancients than the former.

Our word "dulcimer" seems on good authority to have been derived from the Italian, perhaps from the old word *dolcimela*, which is connected with *dolcin*. Now *dolcin* is a kind of *hautboy;* but it must not be thought that any relationship whatever to the hautboy was suggested by the title "dulcimer."[1] This is but one more proof of the utter confusion which is to be found in the application of musical terms; or rather, perhaps, suggests the intimate connection which has existed between all phases of musical history. The word *dolcin* survives to this day in the catalogues of the registers or stops in old German organs, appearing as *dolcan*, *dulcan*, *dulcian*, or *dulzian*, and signifying generally either a deep hautboy or high bassoon. From this source we get our *dulciana*, the name of the lovely soft-toned stop invented by old Snetzler, the builder of many fine organs in different parts of England. The Spanish have the exact counterpart of this word in their *dulcaynas*, mentioned in

[1] See also in chap. ix. an account of the association of the word *cymbal* (*cembalo*) with the dulcimer.

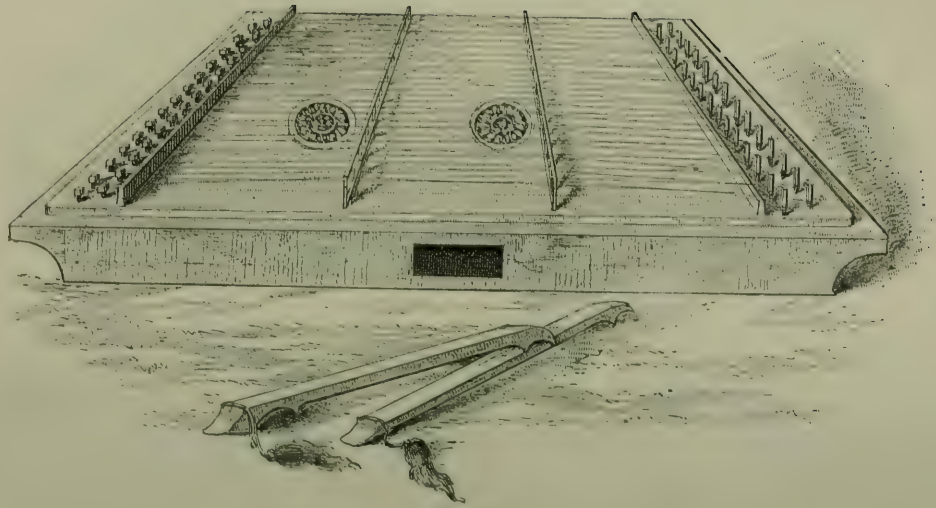

Fig. 31.

Don Quixote, where deep-toned hautboys are evidently meant, and where they are ascribed to a Moorish origin. *Dulciana* is, however, not wisely applied to Snetzler's organ-stop, as it consists of *flue*, not *reed* pipes.

The earliest form of the dulcimer was of the rudest description, probably a flat piece of wood, generally four-sided, either rectangular or with two converging sides, having strings attached to fixed pins on one side, and to movable tuning-pins on the other. Then, in process of time, the simple flat piece of wood was found to be capable of conversion into a resonance-box, and the dulcimer became a genuine string-instrument constructed without a neck, because, inasmuch as the strings were hit with little hammers held in the hand, the long neck became a *useless limb.*

Then, again, the strings would be made, on the inner side of the pins, to pass over a bridge, either as a *continuous* bridge running parallel to the converging sides, or as separate movable bridges under each string. Then, again, in order to produce a greater volume of tone, more than one string came to be allotted to one note, several strings, perhaps as many as three or four, tuned of course in unison, being grouped to each note. In nearly all cases the instrument has been played upon by little hammers, one being wielded by each hand of the performer. The German name of the dulcimer, *hackbret* (chopping-board), is eminently expressive of the position and action of the player. It is important to note that the Italian name of the instrument is *salterio*, because this word connects the Greek ψαλτήριον with the modern European instruments. By some strange fatality the translators of the Authorised Version have dragged in the word "dulcimer" as a translation of *symphonia* (συμφωνία), and not of *psalterion;* so the last three instruments mentioned in our version are these: sackbut, psaltery dulcimer; whereas they should

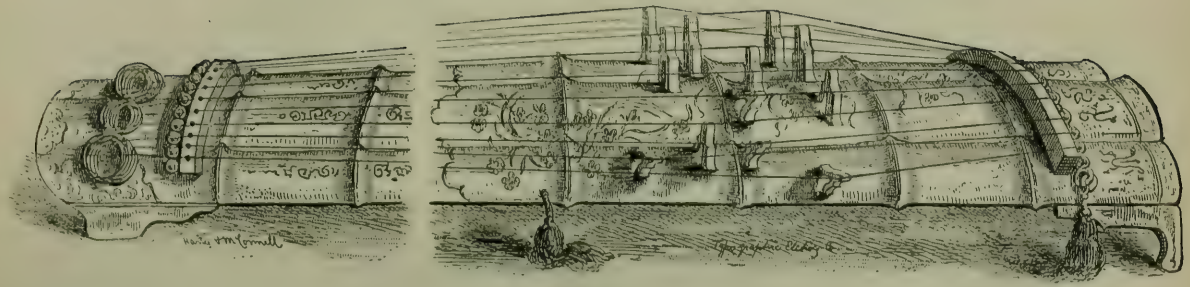

Fig. 32.

read, *harp* (sabeca), *dulcimer* (psanterin), *bag-pipe* (symphonia). Fig. 31 illustrates a Chinese dulcimer, called by them *yang-kin*. It is played with two little sticks; the strings, which are of brass, are very thin. On this instrument, Carl Engel (to whose learning and persevering research the public interest in these subjects, which culminated in the valuable collection at South Kensington, is mainly due, and to whom we are indebted for kind permission to make sketches from his loan exhibition) remarks: "The resemblance of the *yang-kin* to our dulcimer, and to the *santir* of the Arabs and Persians, is very remarkable, and suggests various conjectures." The *kin*, another Chinese instrument, which is of a long oblong shape, with a curved belly, has been improperly called the *scholar's lute*, because it was the favourite instrument of Confucius. When played, it is, like the dulcimer, placed on a table; but, unlike the dulcimer, the strings are twanged with the fingers, instead of being struck with hammers or sticks; and, also, the strings are made to produce several notes by being pressed down by the fingers at given points, or, as we technically term it, by being *stopped*. The Japanese have instruments called *goto* or *koto*, which are of the dulcimer class; that shown in Fig. 32 is a *taki-goto*, made of bamboo, having movable bridges which of course enable a performer to tune it to several distinct successions of intervals or scales. Some are played with the plectrum, others twanged with the tips of the fingers. The strings, thirteen in number, are of carefully-twisted silk. To this instrument the Chinese *tsang* or *tche* bears a remarkable resemblance, not only in shape, but in having movable bridges. The next illustration (Fig. 33) is a *santir* of Georgia, of very elegant construction, being made of wood inlaid with mother-of-pearl. It has twenty-five sets of wire strings, four strings tuned in unison making up each set.

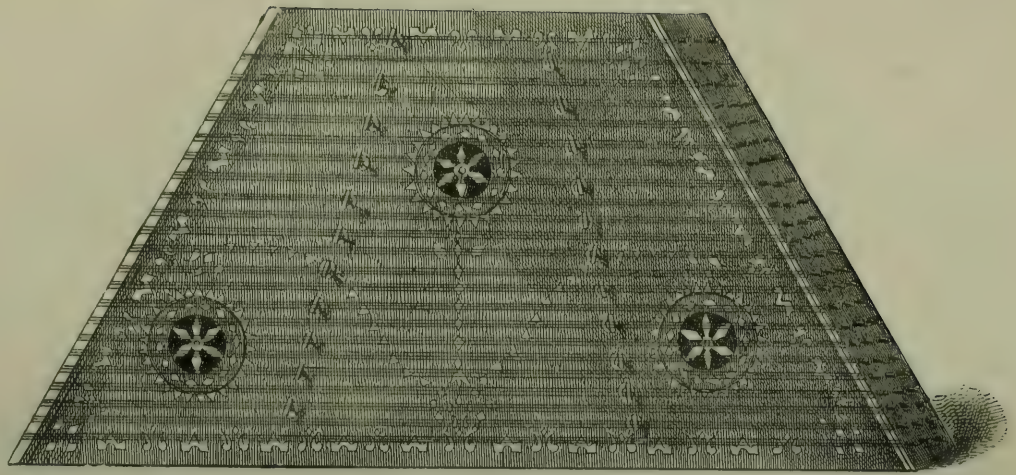

Fig. 33.

The handsome instrument depicted in Fig. 34 is an Italian dulcimer or *salterio* of the middle of the last century. The comparison of this with that shown in Fig. 33 will lead to the most interesting results. One more illustration will be given, and then it is hoped the reader will have had sufficient proof of the connection between the *salterio* of Europe, derived from *psalterium*, and the *santir* of the East, derived from *psanterin* (Fig. 33 showing the *santir*, Fig. 34 the *salterio*).

The next illustration (Fig. 35) is that of the dulcimer of Benares. This specimen is in the Indian Museum. An instrument of a very similar shape and appearance, and having the tuning-pins arranged in the same way, is the *kanoon*, which Engel says is a favourite instrument with the ladies of Turkey. Its strings are of gut, and are twanged with a plectrum of tortoise-shell pointed with cocoanut-shell. An Egyptian instrument of similar construction, called also *ckánóon*, has been described by Lane. The Hindoos have a kind of *santir* which they call *sar mudal.*

It is worthy of remark that the early English dulcimer was called *sautrie* or *sawtry*, an evident corruption of "psaltery." Allusions to this in old writers are sufficiently numerous. Chaucer, in describing the charms and accomplishments of Nicholas, the Oxford cleric, and the furniture of his room, says :—

> "And all above there lay a gay sautrie,
> On which he made on nightes melodie
> So swetely that all the chambre rong :
> And *Angelus ad Virginem* he song."

Fortunately a contemporaneous account of this instrument is to be found in Bartholomæus *De Proprietatibus Rerum*, written originally in Latin, and translated in 1398. It is given by Hawkins as follows :—

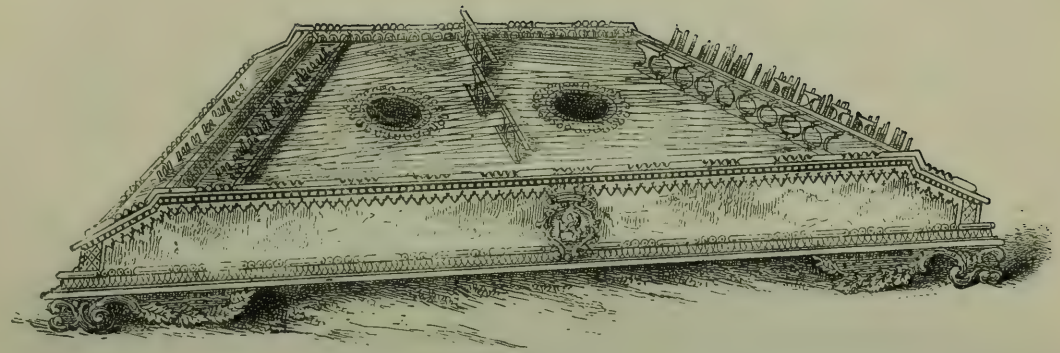

Fig. 34.

DE PSALTERIO.

"The sawtry highte Psalterium, and hath that name of *psallendo*, syngynge; for the consonant answeryth to the note thereof in syngynge. The harpe is like to the sawtry in sowne. But this is the dyuersytee and discorde bytwene the harpe and the sawtry: in the sawtry is an holowe tree,

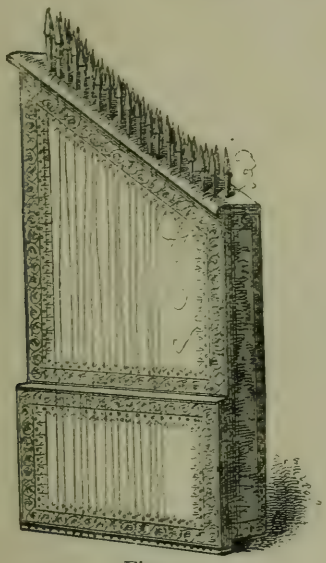

Fig. 35.

and of that same tree the sowne comyth upwarde, and the strynges ben smytte downwarde and sownyth upward; and in the harpe the holownesse of the tre is bynethe. . . Stringes for the sawtry ben beste made of laton,[1] or elles those ben goode that ben made of syluer."

The old citole (*cistella*, a little chest) seems only to have

[1] *Laton* or *latten*, a mixed metal, pinchbeck.

differed from the sawtry in that its strings were twanged with the finger-ends.

But instruments of the dulcimer family are not only interesting to us as being used over such a wide geographical area, and among nations of such various types, but also as being the forerunner of that most useful, as it is too one of the most beautiful, of modern instruments—the pianoforte. Imagine a dulcimer the hammers of which are made to strike by means of keys, or *claves*, and a miniature, pianoforte is the result. There seems to be some doubt as to whether a system of keys was first applied to the organ or to a stringed instrument. The leap from a dulcimer to a pianoforte would have been immediate, if the first instruments with keyboards had *hammers* wherewith to strike the strings. But the form which these early keyed-stringed instruments took was that of the *clavicytherium*, or keyed cithara, a small oblong box containing strings which, when the keys were pressed down, were plucked by quills. The tone produced in this manner has been aptly described as "a scratch with a sound at the end of it." Yet this peculiar twang, though not always similarly produced, was not only borne with, but delighted in, from about the twelfth century to the beginning of the eighteenth—a most lasting popularity. The clavichord, clarichord, or monochord, which was a successor of that first attempt, the clavicytherium, was, though a vast improvement on its predecessor, of a comparatively clumsy construction, its chief characteristic being that a brass pin at the end of the key not only set the string in vibration, but by resting against it portioned off the part which was to vibrate. Much information is given on the subject of this instrument in Dr. Rimbault's valuable work on the History of the Pianoforte. But clumsy as this system seems to us, the clavichord held its own till the time of J. S. Bach, that marvellous man whose instinctive mastery

of the art of music has made his works the treasure-house of all accomplished musicians to this day, albeit he was born in 1685! His son, C. P. E. Bach, played on one to Dr. Burney. But in the meantime the upright pin striking and resting against the string had been superseded by a quill plectrum, as in the clavicytherium, the quill being placed in a small wooden frame called a *jack*, in such a manner, that as the jack rose, the quill plucked the string;

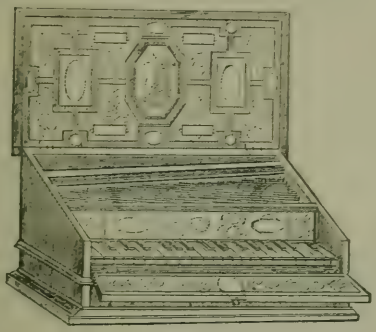

Fig 36.

but as it fell again, the quill passed by the string, and remained ready for another stroke. In all instruments of this kind bits of cloth were used as *dampers*, that is, stopped the vibration of a string when the key was allowed to rise, just as is the case in a modern pianoforte. The *virginal* and *spinet* were two instruments of this class, the first so called because the favourite of ladies, or, as some say, in compliment to Queen Elizabeth; the latter from the resemblance of the quill plucker or plectrum to a thorn (*spina*). They seem to have differed from each other only in shape, the former being made oblong, the latter three-sided, or the shape of a harp lying down. An engraving of both is given (see Figs. 36 and 37).

These were to be in time ousted by the *cembalo*, or *harpsichord*, which included many improvements, such, for instance, as the covering the striking part with leather, the

Fig. 37.

formation of two rows of keys, mechanical contrivances for causing each key to play the octave above, or octave below, its own sound.

On the *cases* of all instruments just described, our forefathers were wont to bestow much decoration. Sometimes,

as the lid was thrown open for the performer, its inner side disclosed an elegant oil painting, a landscape, or symbolical figures. Many were very richly inlaid with various woods, or even with precious stones. In this utilitarian age we pride ourselves (a little too much, perhaps) on giving consideration to the tone, and disregarding the appearance of the case.

The harpsichord is by no means to be despised as a musical instrument; for although vastly inferior in quality and quantity of tone to a grand pianoforte, it possesses a remarkable power of variety, and can be either bright and sparkling, or rich and sonorous in sound. On such an instrument did Handel practise, or while away his time, or perchance draw out the threads of some of his grand conceptions. The fact that the pianoforte did not at first receive sufficient public favour to enable it to displace the harpsichord, accounts for the overlapping of the history of the two. The highly-finished harpsichord was, no doubt, superior to the tentative pianoforte: we can therefore fully sympathise with the public feeling of that day.

It will, it is hoped, have been observed by the reader that the word *psaltery* in its classical sense of a *harp*, is quite a justifiable translation of the Hebrew word *nebel*, but in its modern sense (associated with the Italian *salterio*) it is a more proper translation of *psanterin*—a dulcimer. That ψαλτήριον (psalterion) should have been used in the Septuagint for *both* "nebel" and "psanterin" is much to be regretted. But, as before remarked, its use as a translation of "psanterin" is limited to the Book of Daniel.

CHAPTER IV.

STRING INSTRUMENTS (*continued*).—KITHROS.

KITHROS, *cithara* (*κιθάρα*), is one of the instruments mentioned in Dan. iii. 5, 7, 10, 15: the Greek form of the name, as before remarked, strengthens the argument that the instrument itself was a foreign importation. In Ezek. xxvii., the prophet, in giving the many sources of luxury and greatness open to Tyre, distinctly alludes to Grecian traffic; and, moreover, in the succeeding age to the fall of Troy Æolian and Ionian colonies were transplanted into Asia. There is, therefore, more than one channel through which Greek names of musical instruments could become familiar in Asia. From *cithara* our European word *guitar* is derived, but this is only one of a large family of words sprung from the same origin. The Arabians have their *kuitra;* the Persians, *kitar*. The Nubian *kissar* has already been described, but it may be well to add that the Egyptians call the *kissar* "gytarah barbaryeh," or the *Berbers' guitar*.[1] In Europe the name has undergone many changes; the old French form is *guiterne;* the old English, *gittern*, *cithern*, *cither*, *cythorn*, or *gythorn;* Italian, *ghiterra* or *chiterra* (*chitarrone*, a big cithera, was a long-necked theorbo); German, *zither*, but this is not the instrument now called by this name, which is becoming very popular. It is remarkable

[1] See p. 18.

that Sanskrit *katur* means *four*, and that *chutara* in Persian may mean four strings, and also that the Hindus have a name implying a numerical value, *si-tar*, "the three-stringed." Is it possible that the instrument was in the earliest times of

Fig. 38.

Asiatic origin, that it was then imported into the civilisation of south-east Europe, and then carried to the Babylonians as a European luxury?

It is difficult to determine when the cithara had so far departed from the form of a *lyre* as to become a *guitar*. As a full explanation of the difference between these two has

been already given (see page 22), it will be unnecessary to say much more. Only, the transition from the old cithara with its partially-covered strings to the long-necked modern instrument is remarkable, when it is remembered that the

Fig. 39.

Egyptians actually possessed such things. (See Fig. 21, page 28.) But the Greeks and Romans never adopted these instruments. Had they done so, the European guitar would not have been the slow growth of several centuries.

As a lyre and a guitar have been depicted in Figs. 17 and 18, pages 21, 22, and the upper part of the neck of a modern

European guitar in Fig. 22, page 30, it will be only necessary to give now some illustrations of old citharas, when the only distinction which existed between them and lyres was the sort of box over which the lower ends of the strings stretched (see Figs. 38, 39, 40, 41).

Fig. 41, which was discovered in a painting at Hercu-

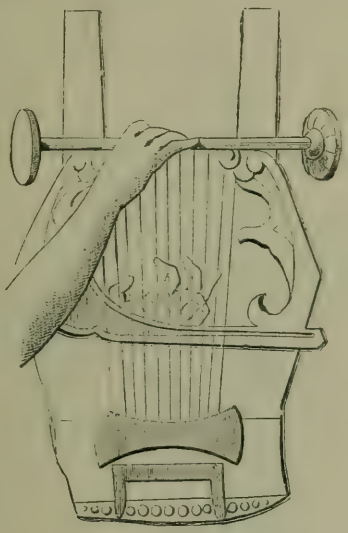

Fig. 40.

laneum, is remarkable, in that there are evidently two strings to each note.

It would seem that the ancient lyre of the Greeks, the *phorminx* (φόρμιγξ), had the characteristics of a cithara. The barbiton, the Lesbian lyre, which was a large instrument, is shown in Fig. 42.

Some authors have affirmed that without doubt the Hebrews had citharas of classical form, and appeal in

proof of their assertion to the devices on Maccabæan medals shown in Figs. 43, 44, 45. But putting the late date of these medals out of the question, it would be most unsafe to attach so much importance to anything found on coins. It is true that ancient nations were more in the habit of depicting objects of art from things round about themselves than we are, but on the other hand the lyre had no doubt

Fig. 41.

become established as a common ornament. It has been well remarked that should the statue of Handel, now in Westminster Abbey, survive all around it, and be the happy discovery of remote antiquarians, they will certainly believe that our great composer played on, and wrote for, the *lyre*, because he holds one in his hands. And should it also happen to be known that he actually *did* include a part for a theorbo, or arch-lute, in one of his works, the supposed fact will be considered firmly established.

We have now given an account of the string-instruments

mentioned in the Bible, and although opinions are still very conflicting as to their exact nature, it is hoped a strong probability has been established that (1) the *kinnor* was a portable lyre or guitar; (2) the *nebel*, a harp of moderate

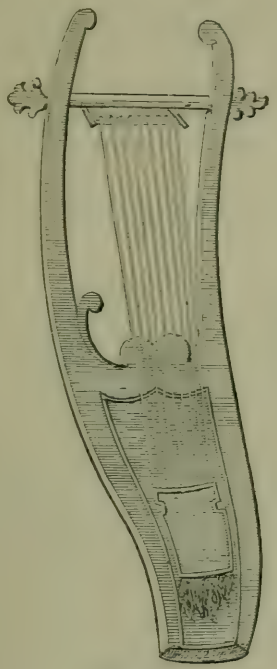

Fig. 42.

size, but portable; (3) the *nebel-azor*, a ten-stringed *nebel*; (4) the *sabeka*, a large harp, perhaps fixed to a stand; (5) the *psanterin*, a dulcimer; (6) the *kithros*, a lyre or guitar, probably of a large size, and perhaps also fixed to a stand.

Before, however, leaving this division of our subject it seems necessary to say a few words on several expressions

used in the headings of the Psalms and elsewhere, some of which are thought by learned writers to contain definite directions as to the string-instrument to be used, or to the method of its tuning, &c.; in any case, they are now generally thought to have contained some musical reference.

Alamoth, one of these obscure words, occurs in the title of Ps. xlvii., and also in Ps. lxviii. 25. But as it is met with in the next quotation, in juxtaposition with *sheminith*, it will be convenient to consider them together. "So the singers, Heman, Asaph, and Ethan, were appointed to sound with cymbals of brass; and Zechariah, and Aziel, and Shemiramoth, and Jehiel, and Unni, and Eliab, and Maaseiah, and

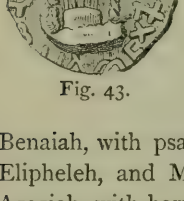

Fig. 43.

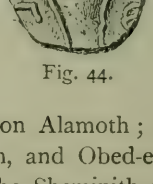

Fig. 44.

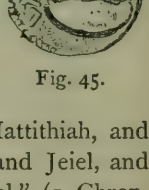

Fig. 45.

Benaiah, with psalteries on Alamoth; and Mattithiah, and Elipheleh, and Mikneiah, and Obed-edom, and Jeiel, and Azaziah, with harps on the Sheminith to excel" (1 Chron. xv. 19—21). Thus we see whilst some were set aside as players of cymbals, others were to play with *nebels on alamoth*, and others with *kinnors on the sheminith*.

Alamoth may mean "hidden things," or "things pertaining to youths" or "virgins." The first is adopted by St. Augustine, who applies it to the mysteries of the Gospel. But many authors, adopting the last meanings, have considered *alamoth* to mean songs for boys or virgins, or, in fact, for *treble voices*. But Dr. Jebb, in his learned dissertation on this word,[1] points out that the signification

[1] *A Literal Translation of the Psalms.* (Longmans, 1846; 2 vols.)

of "hidden things," or "mysteries," is inapplicable to its appearance in Ps. lxviii. 25. "First go the *sharim* (singers), then follow the *neginim* (kinnors); in the midst are the *alamoth*," where our version renders it "the damsels playing with the timbrels." There is also one more reason why "virgins" or "boys" should not be necessarily implied in the term, namely, from a consideration of the passage above quoted (1 Chron. xv. 19—21), where the names of *men* are given as players on *nebels on alamoth*. It may, however, mean of a *treble* or *high pitch*, and it has been explained "vox clara et acuta quasi virginum;" but if this explanation refers to the *nebel* with which *alamoth* is associated, it will make *nebel* appear to be of a higher pitch than the *kinnor* which is associated with *sheminith*. This is a conclusion to which we should be very unwillingly driven; because the *kinnor* is the more ancient of the two, being (as has been before stated) the only stringed instrument mentioned in the Pentateuch, while the *nebel* is not named till we reach 1 Sam. x. 5; and, moreover, the *kinnor*, as being carried about hither and thither in the wanderings of the early tribes, must *necessarily* have been light and portable. If the *nebel* were of a pitch much higher than that of the *kinnor*, the *kinnor* must have been considerably larger to have made a suitable *bass* to it. Is it likely that a nation would succeed in carrying into captivity and preserving *large* harps? Yet the Israelites hung their *kinnors* in the willow branches which shadowed Babylon's waters. No; the *kinnor* was smaller than the *nebel*. Of course it may be urged that the *nebel*, even if a larger instrument than the *kinnor*, might have had so great an upward compass as to enable the performer on it to play above the pitch of the *kinnor*. But if this were the case, why should *sheminith* be associated with *kinnor*?

It is to this relation between *sheminith* and *alamoth* that

we must look for the meaning of the latter, and as *sheminith* signifies *eighth*, it is certainly fair to assume that *alamoth*, when connected with *nebel*, suggested also some numerical value, even if all traces of its precise meaning are now lost.

The exact application of the expression "on the eighth" (*sheminith*) with reference to *kinnors* is most difficult, or rather impossible to determine. The following seem to be the most important conjectures which have been hazarded—namely, that it refers (1) to the pitch of an octave; or (2) to the name of a scale or tune; or (3) to the number of strings on the instrument. As to the first of these, it must be admitted that it is ingenious, but a little consideration will show that there are serious objections to its acceptation. For, although it is true that the *octave* is not only one of the best known intervals in music, as being the distance between the singing-pitch of men and women, but also the most important naturally, being produced by the simplest ratio of vibrations 1 : 2; yet the name *octave* could only be given to it by those who possessed a scale in which eight steps led from a note to its octave. Such a sound-ladder is of comparatively modern origin. The Greeks called the *interval* of an octave *diapason* (διὰ πασῶν); the position of an octave on a string *mese* (μέση), that is, *middle*, because half the length of any string will produce the octave above the sound of the whole length; and two sounds forming an octave they called, *as to their relation to each other*, *antiphonoi* (ἀντίφωνοι), as being "over against," or responsive to, each other. But their scale consisted of a series of tetrachords, or groups of four notes in succession, some overlapping, that is, having one note common to two; others being disjunct.

It is true that the Ambrosian chant, in the fourth century, and, two centuries later, the Gregorian modes,

were to a certain extent limited, in more than one way, by the octave, but at the same time it was always attempted by teachers of music to graft the new on to the old system, although the former had indeed departed vastly from the principles of the latter. Thus it will be found that a knowledge of ecclesiastical modes, and of the Greek tetrachords and harmonic ratios, formed the material of music-lore until the Guidonian system of hexachords became established in the eleventh century. This system held its own for five or six centuries; in fact, its system of nomenclature seems to have been retained long after modern key-tonality was firmly settled. It may then be safely said that "on the eighth" would not have directed the Levites to play in octaves.

As to the second explanation of *sheminith* which has been mentioned—namely, that it referred to an eighth *mode* or *scale*—all that need be said is, that even if the Hebrews did use various modes known by their numbers, there seems to be no reason for giving *general* directions that such and such men should play on *nebels*, in one particular key, and other men on *kinnors* in some other key; because, if these instruments were always used and intended to be used in particular definite keys, why was it necessary to specify in which key? the fact would be known; but, on the other hand, if these instruments were capable of being tuned to many keys (as certainly was the case), why give command to certain Levites to play upon them only in one key?

To believe that the expression refers to a certain melody is equally impossible, as nothing could be more absurd than to suppose that certain highly practised nebelists or kinnorists would be formally set aside for the purpose of playing *one tune*. It might be so for one ceremony, but the close of chap. xvi. (1 Chron.) distinctly intimates that these Levites were chosen to be before the ark *continually*, and

those were chosen "who were expressed by name to give thanks to the Lord, because his mercy endureth for ever."

If "on the eighth" or "the eighth" refers to the number of the strings of the *kinnor*, we must be led to the important and valuable conclusion, that these *nebels* and *kinnors* were used at different times, or at the will of different players, with various numbers of strings, and that the object of this direction was to procure uniformity in this respect. A little further on an ingenious conjecture as to the meaning of *alamoth* will be given.

Gittith, or *Ha-Gittith*, appears over Psalms viii., lxxxi., and lxxxiv. As being derived from a root signifying "wine-press," it has been translated in the Septuagint by ληνοί, and Vulgate by *torcularia*, both meaning "wine-presses," and some have thought it shows that the psalm is a *vintage-song*, or to be sung to some well-known vintage-song. But the word is also connected with *Gath*, and it may have been an instrument brought from the city of Gath.[1]

Aijeleth-shahar or *Aijeleth-he-shahar*, which occurs in Ps. xxii., signifies "hind of the morning," "dawn of day," or "morning twilight," supposed by many commentators to be the first line of words of a well-known tune to which this psalm was to be sung; just as the Germans now call their chorales by the first line of the original words, even when other sets of words are adapted to them, as in the well-known instances, "O Haupt voll Blut und Wunden," "In allen meinen Thaten."

Alluding to the three words *Alamoth*, *Aijeleth*, and *Gittith*, Dr. Jebb makes such an important suggestion that he will forgive us for quoting his own words:—"It is to be observed that there are three Levitical cities, whose names resemble three designations in the titles

[1] See Lange's *Commentary on the Bible:* Psalms, p. 33, under head Al-haggittith.

(of the Psalms), *Alemeth*, *Aijelon*, and *Gath-Rimmon*. What is there, then, to hinder us from supposing that the designation *Alamoth* may mean harps that were constructed or improved by some Levite of *Alemeth;* that *Aijeleth-he-shahar* means a harp of *Aijelon;* and *Gittith*, one of Gath; just as we now speak of a German flute or a Cremona violin?"—(*Literal Translation of the Psalms.* Dissertations.)

Neginoth, in the singular *neginah*, occurs over several Psalms: as the root from which it is derived signifies "to strike a chord" (much the same as *psallere*), it probably is the *collective* term for stringed instruments. It is often joined with *kinnor*, though not with *nebel*. But if not joined with *kinnor* it often refers to that instrument, as, for example:—"And Saul said unto his servants, Provide me now a man that can play well, and bring him to me. Then answered one of the servants, and said, Behold, I have seen a son of Jesse the Beth-lehemite, that is *cunning in playing*," &c. (1 Sam. xvi. 17, 18; see also xviii. 10, and elsewhere). Dr. Jebb says *neginoth*, *sheminith*, and *kinnor* all refer to the same instrument: the first, to the mode of playing it; the second, to its compass; the last is its specific designation.

Shushan may mean "change," or more commonly "lily;" the latter, if it contains a musical reference, can only refer to the shape of an instrument—some have thought to *cymbals*, as being generally circular, with a deep central indentation. But it would be more applicable to the elegant outline of some of the lyres as shown in classical sculptures—such, for instance, as that in the celebrated "Apollo citharoedos." But it also may have a numerical meaning, suggesting the number six. It is often joined with the word *eduth*, which signified "testimony;" hence *shushan eduth* has been translated by Schleusner (quoted by

Dr. Jebb) "the hexachord of testimony"—a highly poetical rendering, doubtless, but one which does not convey much definite information. As it is recorded in 1 Chron. xvi. 37—42 that part of the Levitical choir was stationed at Gibeon, where the tabernacle was pitched, and another part—the company of Asaph—at Jerusalem, to do honour to the ark of the testimony, it is possible that the *shushan eduth* meant the harp of six strings played at the latter, its distinctive name being retained after the junction of the two choral divisions.

Higgaion, translated in the Septuagint ᾠδή, appears in the Bible version of Ps. ix. 16—"The Lord is known by the judgment which he executeth: the wicked is snared in the work of his own hands. Higgaion. Selah." The marginal note translates Higgaion as a "meditation." As the root of the word suggests "meditation," or "murmuring," and as it is used in Lam. iii. 62 of the murmurings of malicious enemies, the term can hardly be considered as a musical direction. But, on the other hand, it occurs in Ps. xcii. 4, in such an association as to render a musical reference almost necessary:—"Upon an instrument of ten strings, and upon the psaltery; upon the harp with a *solemn sound*," or, as the margin has it, more correctly, "upon the *higgaion* (solemn sound) with the harp." The Prayer-book version, it will be remembered, here reads "upon a *loud instrument*." It may possibly allude to a solemn and deep-toned performance on harps, which was found conducive to private meditation. Its conjunction with Selah makes this explanation the more probable.

The term *Selah*, which occurs three times in the Book of Habakkuk, and no less than seventy-one times in the Psalms, has been variously interpreted as indicating (1) a pause; (2) repetition (like *Da Capo*); (3) the end of a strophe; (4) a playing with full power (*fortissimo*); (5) a bending of the

body, an obeisance; (6) a short recurring symphony (a *ritornello*). Of all these the last seems the most probable. In a lecture on the subject, given by Sir F. Ouseley, a psalm was sung into which such *ritornelli* on string instruments and trumpets were introduced at every occurrence of the word Selah. The effect was considered imposing and devotional. The fact that twenty-eight of the thirty-nine Psalms in which this word occurs have musical superscriptions, seems to compel belief that it was a direction to the musical performers.

Minnim, which is derived from a root signifying "division," or "distribution," hence *strings*, seems on all sides to be allowed to be a poetical allusion to stringed instruments generally, and is so translated in the last Psalm :—"Praise him with *stringed instruments* and organs." The word also occurs in Ps. xlv. 8, which would be better rendered thus :—"Out of the ivory palaces the stringed instruments have made thee glad."

In conclusion, it must be said that although our information is very scanty on the subject of Hebrew string instruments, so scanty as to warn us against entering into elaborate arguments as to the exact number of strings on any particular one, and although the *kinnor* and *nebel* seem to have been almost the only instruments consecrated to sacred uses, yet there is no reason for doubting that many other kinds were known or used by the Hebrews. If it seems absurd to us that two families of harps should be the chief, or perhaps only, string-support of their sacred music, let us ask ourselves how many families of stringed instruments we use in our modern orchestra; practically *one*. We have four sorts, it is true, but they have (at the present time) the same number of strings, and are of similar construction, and have the same generic name, *viol*. We have the viol, the little viol, the big viol, and the little-big viol

(*viola, violino, violone, violoncello.*) The harp does of course appear occasionally, but it can hardly be called a necessary part of a stringed band, considering that the student may listen to all the symphonies of Beethoven, Mozart, and Mendelssohn, without once hearing its tones. In speaking of the *kinnor* and *nebel* it will be noticed that the *azor* has been just now omitted. It is because we only consider the word *azor* as explanatory of, or as modifying, the word *nebel*, to which it is always attached, in which case the *nebel-azor* becomes the *ten-stringed* harp. The constant improvements which are always being made in musical instruments renders it no easy task to describe one even of our own time. The answer to the simple question, "What is the compass of a pianoforte?" might be extended to a goodly length, if full particulars were entered into. Minute details cannot be expected when the search is among occasional hints or allusions, which are in themselves accidental, and not intended for the special information of the reader. We have reason to congratulate ourselves that modern writers have learned to distrust a vast amount of statements made by certain writers of the two or perhaps three last centuries. Some, who were for a long period held in much esteem (Kircher, for example), seem to have drawn largely upon their imagination when describing ancient musical instruments, and to have thought that the best argument in favour of any supposititious form of an instrument was to give a good wood-cut of it!

The gradual development of string-instruments into various species is a subject of so great interest, that a Plate is here appended giving the outline of the more important of each group, starting from the primitive hunting-bow, the playful twanging of the strings of which in idle moments most probably led to the construction of all musical instruments of this class. This suggestion is painfully unpoetical, and

cannot for one moment hold its own, as far as romance goes, against the pretty stories as to the origin of such instruments handed down from remote times amongst nearly every great race of mankind. But it is, nevertheless, practically true; and, moreover, its truth is not overthrown by the fact that several species may occasionally be merged into one another, or from time to time have over-lapped in their growth. Of the Figs. in the Plate, 1 shows a common hunting-bow, the string of which is at such a tension that it would emit a musical sound on being plucked; 2 shows a primitive harp, formed by placing other strings in a bow, parallel to the longest. Here, however, is shown also the great improvement of a hollow body or resonance-box for increasing the *power* of the sounds—a discovery perhaps accidentally made by placing a bow with several strings on a hollow floor or empty inverted tub. Fig. 3 is an outline of the ancient instrument now used by the negroes, and called a *nanga;* it consists of a primitive bow-shaped body formed of a more extended *arc* than its predecessor, probably on account of its greater convenience for general use and for its portability. It is distinctly the link between the harp and the guitar given at Fig. 4, known to the Egyptians as the *nefer*, and having counterparts in nearly every nation, civilised or savage, on the globe. The thin upper portion of the *body* of the harp, made somewhat straighter in the nanga (3), has now become in the *nefer* (4) a veritable *neck*, and available as a *finger-board.* But again it must have been found at a very early period, that if the two sides of a bow are drawn very closely together by a rigid material, as in Fig. 5, strings can be drawn at right angles to those in the primitive harp; thus would the first *lyre* be formed, the circular base being formed into a resonance-box. When once, however,

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the theory of a resonance-box was understood, the existence of a *lute* (6), having a much larger resonance-box than a lyre and a much shorter neck than a nefer, became a mere matter of time. The transition from 6 to 7, that is from a lute to a guitar, is so natural as to call for no remark; the indentations in the sides of the guitar, primarily intended to make it lie comfortably on one leg of the player, seem to have suggested the indentations in the side of the violin family (8), so necessary for the free movement of the bow. In Fig. 9 will be seen an early fiddle, the Asiatic *rebab*, afterwards the *rebec*, or three-stringed viol of Europe, in which the absence of deep curved indentations is noticeable; also, the shape of the resonance-box is interesting as suggesting that when strings stretched over a resonance-box were hit with hammers the uselessness of the neck would be apparent; such a box, deprived of its head and tail, would form the body of a dulcimer (Fig. 10). When the hammers of a dulcimer are connected with levers called "keys" we call it a pianoforte.

It will be well to say at once that the above sketch of the development of musical instruments is not meant to be *chronologically* true; it is merely intended to illustrate the remarkable co-relation of all string-instruments, ancient and modern. The use of a *bow* as a means of exciting vibrations of strings is in itself a most interesting fact, and suggests that the rubbing of one simple bow against another may have led to its discovery. Certainly bows are of great antiquity, many savage nations having instruments constructed like a *nefer* (Fig. 4), but played with a bow. A glance at the Plate will show how important a part of the growth of musical string-instruments is due to the resonance-box. In its early state it was merely formed by stretching a membrane of skin (commonly snake-skin)

across a rounded open piece of wood or half a dried gourd. In its more elaborate form it was adjusted to the requirements of the compass of sounds to be produced by the strings, to their thickness, tension, and position; also by carefully selecting the finest specimens of wood for use, by giving consideration to its weight, closeness of fibre, &c., and finally, by determining the best *model* or "shape of the resonance-box." By innumerable experiments in such things, extending perhaps over thousands of years, we at last are in possession of an almost ideal type of violin, as turned out by the great Italian masters (Stradiuarius in particular), who have so perfected the construction of this instrument with relation to its requirements, that the most skilful of modern workmen can make no better effort than to imitate their models, without indulging in a hope of ever surpassing them in general excellence.

The most primitive material used for strings was, probably, twisted grass; next in time, the guts of animals; lastly, wire or silk. String-instruments closely allied to two or more of the family-types depicted in the Plate are both numerous and interesting. The *harp-lute*, a favourite instrument at the close of the last century, good specimens of which may even now be often found in the shops of instrument-makers, possessed characteristics of both harp and lute, having certain strings passing over a fretted finger-board, while others were open at the back. In the harpsichord, keys acted on little *plectra* which plucked the strings; what the ancient lyrists were compelled to do with their fingers assisted by a plectrum, is here done by the leverage of keys. In the pianoforte the hammers are no longer left in the hands of the player, but are also placed under the control of levers. The old German *Streich-zither* was a link between the guitar and fiddle; it was, as its name implies, a bowed-guitar. A similar transition is suggested by the old

Italian *viola-lyra*[1] (lyre-viol), once a favourite instrument in this country.[2] This transition is also implied by the fact that all early viols had frets like a lute or guitar; the frets were still in use when the instrument was called a *violin* and no longer a *viol.*[3] Nor have efforts been wanting to combine the effects of keys and bows; several instruments have from time to time been made in shape like a pianoforte, but containing catgut strings, "bowed" by a rotating resined wheel against which the action of the keys forced the strings. The modern *zither* combines the use of the plectrum of the ancient lyrist with the flat resonance-box and wire strings of the dulcimer. It has also certain strings over frets, thus possessing something in common with the lute family.

It will be plainly seen from what has been said that there are but few original progenitors—perhaps, indeed, only one—of the very large number of string-instruments now in existence.

[1] See *Les Instruments a archet*, par Antoine Vidal. (Paris, 1876.)

[2] See *History of the Violin*, by Sandys and Forster. (London, 1864.)

[3] See Playford's *Introduction to the Skill of Music*, where instructions are given for playing on this "cheerful and sprightly instrument . . . . much practised of late." (14th edition, 1700.)

PART II.

CHAPTER V.

WIND INSTRUMENTS.—KHALIL OR HALIL (THE PIPE); MACHOL; MAHALACH.

THE universal usage of musical instruments of this class renders it difficult to reduce an account of them to reasonable limits. It will be well to state at once that in all probability the word *pipe*—the αὐλός of the Greeks, the *tibia* of the Romans—included two important divisions of modern instruments: namely, *reed* instruments, such as the oboe or clarinet; or simple *flue* pipes, such as the flute. That this must have been the case is evident from the fact, that while there is unquestionable evidence that many ancient instruments had reeds, no special name is set apart for them as opposed to open tubes without reeds. The very existence of the word γλωσσόκομον (tongue-box)[1] shows that the player was accustomed to carry his tongues or reeds separately from his instrument, just as our modern oboists and clarinettists do. It must also be borne in mind

[1] This word, it will be remembered, is used in St. John xii. 6 and xiii. 29, where it is translated *bag;* but it is quite possible that Judas Iscariot carried the money in a "reed-box," as implied by the Greek text.

that both oboe and clarinet are children of one parent, and did not become distinct classes until the early part of the last century, the parent name being *chalumeau*, from the Latin *calamus*, Greek κάλαμος, a cane or reed. But when *chalumeau* is translated "a reed-pipe," it must not be forgotten that the term is applied to the material of which the pipe is made (a cane), and not, as we always apply the term now, to a pipe containing a reed or tongue. Hence it will be seen that we are no nearer the discovery of distinctive names for these two classes of instruments, even when their parent stock is found. It may be worth mentioning that the real difference between an oboe and a clarinet is, that the former has a double tongue which vibrates, the latter a single tongue.

The derivations of some of the ancient names of flutes are very interesting: *khalil* or *hahil*, from a root signifying "pierced" or "bored"; *tibia* (Lat.), from the fact that it was often made of a shin-bone; *aulos* (αὐλός), from the root ἄω, αὔω, "to blow," exactly corresponding to our *flute*, from the Lat. *flo*, "to blow," as also flageolet, from *flatus; calamus* (κάλαμος), *chalumeau*, from the material, just as the Arabian flute is called *nay*, "a reed," of which the Arabs have as many as ten varieties; there was also a small Phœnician flute called *gingra* (γίγγρα), which is probably connected with Sanskrit *grî*, "to sound."

Was the *khalil* a flute or oboe? Probably the latter. There is evidence from many sources that the Hebrews had oboes (see Lightfoot, who speaks, in his *Temple Service*, of oboes being used once in each month), and there seems to be no good reason for believing that they had a distinctive term for them. Jahn thinks it probable that they were very similar to the *zamr* of the Arabs, of which there are three kinds, not differing essentially from each other, but only in size and pitch, the largest being called *zamr-al-*

kébyr; the middle sized, as being most commonly used, *zamr;* and the smallest *zamr-el-soghayr.* Fig. 46 shows two of these.

It is probably known to the reader that large and small oboes have always existed, and are in use at the present day. Two sorts are used in the score of Bach's Passion Music (according to St. Matthew), called respectively *oboe d'amor* (the love oboe), and *oboe di caccia* (hunting-oboe); the part of the former, the smaller of the two, can be, and generally is, played on the common oboe; that of the latter on the tenor oboe or tenoroon, commonly but very

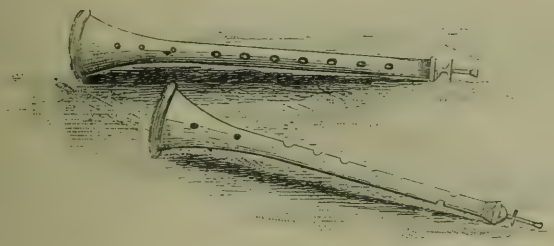


Fig. 46.

improperly, termed *corno-inglese*, or the English horn. This last instrument does not terminate in a direct bell or *pavillon*, like those shown in Fig 46, but has an upward turn, a form which, curiously enough, is found depicted on monuments two thousand years old.

Of the pipes without reeds, like our flutes, there always have been two kinds: one played by blowing in one end, hence held straight in front of the performer; the other played by blowing in a hole in the side, hence held sideways. The former was called the *flûte à bec*, that is, the flute with a beak; the latter, *flauto traverso*, that is, the oblique flute, or flute played crossways. Fig. 47 is an illustration of a *flûte à bec* in possession of the author, which

was brought from Egypt by a musical friend. It was carried by a Mahometan pilgrim, who vowed that he valued it more than anything he owned, but he was very willing to part with it at the sight of a small sum of money. It is of cane, and is rudely ornamented with simple patterns. It seems closely allied to the *souffarah* of the Arabs. The next illustration (Fig. 48) shows an ancient Egyptian *flauto traverso* or *piffera di canna* (reed-flute), as it is described, in the museum at Florence.

These instruments seem, judging from the specimens

Fig. 47.

Fig. 48.

found in Egyptian sculpture or frescoes, to have been of various lengths, sometimes far exceeding the size of the flute commonly used in our orchestras. This goes to prove that this nation was wise enough to make use of a family of flutes, just as we use a family of viols. And there are many musicians who think that we lose much by thus excluding flutes of deep sonority. Within the last few years an attempt has been made to revive these instruments, a concert having been given in London at which a quartet was played by four flutes, treble, alto, tenor, and bass.

Fig. 49 represents an Egyptian playing on one of these oblique flutes. The attitude will not strike a modern flautist as being either comfortable or convenient, but there

is no accounting for the conventionalities of art. One thing the ancients lacked which has been of inestimable benefit to us, the use of keys—that is, a simple system of leverage by which holes in the instrument quite out of reach of the length of the ordinary human five fingers can be brought completely under control, and can be closed or opened without any great disturbance of the position of the hand. The thumb, which could not possibly close a hole at the top of the instrument in former times, is now able to do so. Thus both the compass of the instrument and the ease with which it can be manipulated have been largely increased.

Fig. 49.

It must not be supposed that such improvements have been rapidly created. They are of our own time, invented by Gordon, perfected by the ingenious Boehm. It is strange that this oblique flute should have been of comparatively late revival in Europe. All who have seen copies of the music of the last century must have observed how particular writers were to call it the *German flute*, as if forsooth it had not been one of the chief elements of sweet music many thousand years previously! So often does it happen that mankind strives unwittingly after a supposed novelty, unaware that the same steps have been trodden before, the same results long since achieved.

Two ancient Greek flutes, found in a tomb, are preserved in the British Museum. Their great age renders the wood

from which they were made extremely frail, and any rough usage would probably reduce them to dust. (Fig. 50.) It is remarkable that flutes of the exact shape of these are not to be found on any known monument. Is it possible that sculptors were tempted to mould, if not an ideal form of instrument, one not of the commonest kind?

But be this as it may, the curved form of such instruments was very common in the Middle Ages. The *cornetto curvo* of the Italians seems to have been used in all European countries under different names. Two very beautiful instruments of this kind and shape were discovered in the cathedral of Christ Church, Oxford, when the muniment-

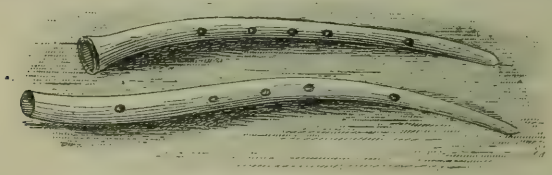


Fig. 50.

room was being removed for the purposes of restoration. They were probably in use in the sixteenth or beginning of the seventeenth century. Like most *cornetti curvi*, they are made of wood, covered with black leather, but so admirable is the workmanship that a casual glance would lead any one to believe them to be of black wood. They have the usual number of holes, six above and one below, and are elegantly mounted in silver, on which are engraved the arms of the college. They doubtless were the chief support of the treble part, at funerals or any ceremonies where it was necessary to have a musical procession. In Germany (says Engel) they were still employed in the beginning of the eighteenth century (under the name *zinken*), when the town bands played chorales, on certain occasions, from the tower of their parish church. They were played with reeds,

probably of the oboe or double kind. So, too, were these ancient Greek flutes (Fig. 50) reed instruments, but Fétis is of opinion that they had single tongues, like our clarinet, only he is inclined to think that the tongue was of metal, not of wood, because in a certain account given of a trial of musical skill, one player was unable to compete because the reed of his instrument was *bent*. But it is probably assuming too much to say that such an accident could not have happened to a wooden tongue, and that, therefore, brass was the material of which it was made. One thing however is certain, and that is, that in the earliest forms of *calamus* the reed would naturally be of cane, because it would be simply formed by an incision in the surface of the cane itself, similar to that made by boys in a piece of straw, when constructing that toy instrument dignified by pastoral poets by the name of "oaten pipe." It is remarkable that the *flauto traverso*, or oblique flute, as shown in the Egyptian drawing (Fig. 49), is not to be found on any Assyrian or Chaldean monuments. If then the Jews used it, they must have adopted it from Egypt, which is also acknowledged to be the source from whence the Greeks obtained it. The *khalil* seems to have been used by the Jews on very similar occasions to those at which our ancient oboes played an important part, most often during seasons of pleasure, but sometimes also at funerals. Two pipes at least had to be played at the death of a wife. The pipers, it will be remembered, were bidden to "give place" by our Lord, when He said, "The maid is not dead, but sleepeth" (Matt. ix. 24). One common use of the *khalil* was as an amusement and recreation when walking or travelling. The solitary shepherd would cheerily pipe as he traced out his long hill-side walks, and the path of the caravan could be traced by the shrill echoes ever and anon tossed from side to side as, at each new turn in its many windings, frowning rocks

beat back the piercing sounds. Especially such was the case when thousands of persons were making those periodical journeys to Jerusalem, so rigidly prescribed by the law: "Ye shall have a song, as in the night when a holy solemnity is kept; and gladness of heart, as when one goeth with a pipe (*khalil*) to come into the mountain of the Lord, to the mighty One of Israel" (Isa. xxx. 29). The joy of the people when the cry "God save king Solomon!" promised a peaceful and prosperous reign, was shown by their music: "the people piped with pipes, and rejoiced with great joy, so that the earth rent with the sound of them" (1 Kings i. 40). The *khalil* is not so often mentioned in connection with the outpouring of prophetic gifts as instruments of the harp class; but yet when Samuel was describing to Saul how he should meet a company of prophets on his way to Gilgal, he described them as "coming down from the high place with a psaltery (*nebel*), and a tabret (*toph*), and a pipe (*khalil*), and a harp (*kinnor*) before them" (1 Sam. x. 5). But these instruments were elsewhere to be met with than at the solemn processions of holy men, for the prophet Isaiah, in denouncing the drunkards who "rise up early in the morning to follow strong drink," describes their wine feasts as being enlivened by the sounds of the *nebel*, *kinnor*, *toph*, and *khalil* (Isa. v. 12). The prophet Jeremiah, in showing the utter desolation and destruction of Moab, is inspired to say, "I will cause to cease in Moab, saith the Lord, him that offereth in the high places, and him that burneth incense to his gods. Therefore mine heart shall sound for Moab *like pipes*, and mine heart shall sound *like pipes* for the men of Kir-heres. . . . There shall be lamentation generally upon all the house-tops of Moab, and in the streets thereof: for I have broken Moab like a vessel wherein is no pleasure, saith the Lord" (Jer. xlviii. 35, 36, 38). Could any

words describe more touchingly than these the degradation and loss of moral life which should overtake Moab? that it should be wept over as one dead, piped over as a corpse!

There is no direct evidence as to whether the Hebrews used the *double*-flute. It is quite certain they must have been aware of its existence, because it was known to Phœnicians, Assyrians, Egyptians, and Chaldees before it found its way into Greece. So common is it in Roman and Greek sculpture and pottery, that all are familiar with its forms. The word *nechiloth* is understood by Jahn and Saalchütz to mean the double-flute, but, on the other hand, many others consider *nechiloth* to be the collective term for wind instruments. Some consider that *nekeb*, which is derived from a root signifying "hollow," stands for the double-flute; but this word probably signifies the hollow place in which a gem is set.[1] The two tubes forming the double-flute were called oddly enough male and female, but more commonly right and left (*dextra* and *sinistra*). The former appellation, no doubt, refers to the fact that one tube produces a deep note, which served as a *drone* or *bourdon*, while on the other was played the tune. The difference in the pitch might easily have given rise to the comparison implied between the two names.

Such double-pipes are actually in use among the present inhabitants of Egypt. Two specimens, in the possession of the writer, are shown in Figs. 51 and 52. That in the latter illustration has three loose pieces, which may be added at pleasure to the "drone" tube of the instrument for the purpose of adjusting it to the key of the tune to be played. That in the former has two similarly constructed pipes, so that a simple melody may be performed in two parts, much

[1] The close of Ezek. xxviii. 13 should therefore be "the workmanship of the jewels, and the setting of the stones" (*not* "of thy tabrets and of thy pipes").

Fig. 51.

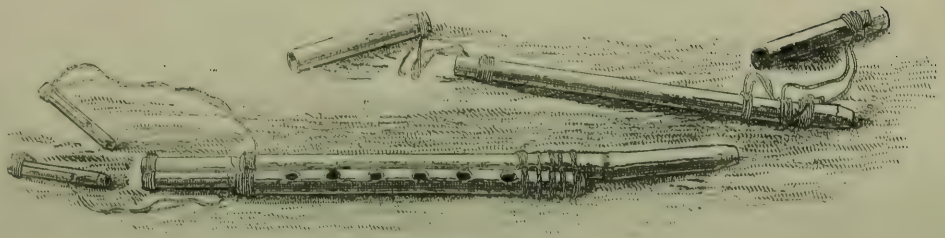


Fig. 52.

in the same way as on the double-flageolet, which at one time was somewhat popular in England, though now rarely seen or heard. Both examples are of the simplest construction. The material of which they are made (including the mouth-pieces and tongues) is of river-reed, cut into lengths, which

Fig. 53.

Fig. 54.

have to be inserted into each other before use. To prevent accidental loss, the separate parts are connected by common waxed cord. These instruments are called *arghool*, and have distinguishing titles, according to the length of the drone-tube.

In Fig. 53 the inequality in the length of the two pipes is very apparent. Fig. 54 shows that they were sometimes used in Egyptian processions of a solemn character. In Fig. 55 is shown the *capistrum*, which Greeks and Romans wore to give support to muscles of the cheeks and face whilst blowing. In modern orchestras we are perfectly content with the quantity of tone produced from our

Fig. 55.

tube-instruments without the assistance of these head-bandages.

An Assyrian is shown playing upon the double-flute in Fig. 56. It is much to be regretted that no details as to the construction of these instruments can be gleaned from the ancient bas-reliefs. No attempt seems to have been made to mark even the position of the holes.

The use of the double-flute by nations with whom the Jews had constant intercourse having been shown, nothing more can be said. The reader must form his own opinion as to the probability of its being rightly enrolled amongst

Hebrew musical instruments. The quality of tone produced by the reed-pipes was, probably, very coarse and shrill. Particular pains have been taken by modern

Fig. 56.

instrument-makers to produce delicate-sounding oboes, clarinets, &c. And with regard to the open pipes, or flutes, of the ancients, it should be borne in mind that it must have been most difficult to produce a series of sounds, either similar in *timbre* or perfectly true in pitch, without the aid of keys. Up to the last century, certain holes in the

then existing flutes had to be only partially covered by the fingers in order to produce certain notes *in tune.* We must learn from this, not to place much confidence in conclusions drawn from actual experiments on old pipes. Suppose, for instance, it were attempted to discover the series of scale-sounds of such an instrument by placing it in the hands of a modern performer, it would be impossible to say whether any noticeable variations from known forms of the scale ought to be attributed to the intentional design of the instrument itself, or to our loss of those traditions which influenced its use. But we may have to say something about the musical scales of the ancients when speaking further on of the vocal music of the Hebrews.

MACHOL, OR MAHHOL.

This word is found in several passages of Holy Scripture associated with the *toph* or timbrel. In the Authorised Version it is almost always rendered by "dances" or "dancing:"—"And Miriam the prophetess, the sister of Aaron, took a timbrel in her hand; and all the women went out after her with timbrels and with dances" (Exod. xv. 20); and again, "Jephthah came to Mizpeh unto his house, and, behold, his daughter came out to meet him *with timbrels and with dances*" (Judges xi. 34). In thus rendering *machol*, our translators have simply followed the Septuagint, in which the corresponding expression is ἐν τυμπάνοις καὶ χοροῖς; the same too in the Vulgate, "cum tympanis et choris." The German, like our own version, follows the Septuagint—"mit Pauken und Reigen," that is, "with drums and chain-dances," dances with linked hands. Although in modern German orchestral scores *pauken* signifies "kettledrums," it must not be supposed that more is here meant than a common timbrel. That dances took place on these and

many other occasions in which timbrels were used there can be no doubt. But may not *machol* signify a small flute? If so, the expression with *toph* and *machol* would exactly correspond to our old English *pipe* and *tabor*, to the sounds of which instruments many a rustic dance was merrily footed. They are still the common accompaniment of village festivities in many parts of Europe. In some of the Pyrenean districts may be seen gathered on the green, round which their homesteads are clustered, the gaily attired villagers dancing to the sounds of a pipe which the seated musician plays with his left hand, while with his right hand he beats a sort of tambour, consisting of six strings stretched across a resonance-box, which rests upon his knees.

The arguments in favour of the theory that *machol* is a flute are founded on the fact that many authors, amongst them Pfeifer, consider the word itself to be derived from the same root as *khalil*, signifying, as before mentioned, "bored through;" and also that in the Syriac version the word is translated by *rephaah*, which is the name of a flute still to be found in Syria. On the other hand, some authors have traced *khalil* to a root *hhalal*, "to dance;" and, of course, if this be a correct derivation, *machol* would more naturally signify a dance than a flute. Saalchütz is of opinion that it implies a combination of music, poetry, and dancing, and is not the name of any special musical instrument. Much can be said in favour of this view. We have words in our own language which have a very similar meaning: for instance, *roundelay*, which may be taken as a song, a dance, or a piece of poetry. But there seems to be but little necessity for forcing such a mixed meaning from the word *machol*. To say that on a joyous occasion men or women went forth with "pipe and tabret," is enough to imply that they danced; and therefore, if our translators

would have more properly rendered *machol* by a "pipe," they have none the less conveyed the real sense of the context by rendering it "dancing." But by assuming the former of these interpretations much force is given to that beautiful passage in the Book of Lamentations (v. 15): "The joy of our heart is ceased; our pipe is turned into mourning." The Psalmist in his joy uses just the converse of this expression, in Ps. xxx. 11: "Thou hast turned for me my mourning into dancing *(machol)*: thou hast put off my sackcloth, and girded me with gladness." So does the prophet, joying over the restoration of Israel (Jer. xxxi. 4 and 13). The only other passage in which the Psalmist uses the word is in Ps. cl. 4: "Praise him with the timbrel and dance." It was the noise of the pipe and tabret which Moses heard as he descended the holy mount to find the people, whom Jehovah had but just highly honoured by the giving of the Law, dancing round a golden calf. We may, then, for two reasons believe the *machol* to have been a flute used specially for dancing: first, because it is highly probable that an instrument was used in conjunction with the tabret; and next, because such a supposition does not exclude the idea of dancing, and in no case seems to do violence to the text.

MAHALATH, OR MACHALATH.

A word allied both to *khalil* and *machol* occurs in the title of two Psalms (liii. and lxxxviii.), the former being inscribed to the "chief musician upon Mahalath," the latter to the "chief musician upon Mahalath Leannoth." Each of these is called also a "Maschil," a title generally thought to designate a poem of a moral or typical import. "Sing ye a *maschil* with the understanding," sings the Psalmist in Ps. xlvii. 7. Many learned writers trace

mahalath to the same root as *khalil* ("perforated," "bored"). If a musical direction, then, this word clearly points out the class of instruments which is to accompany the singers of the psalm—namely, *khalil*. The addition *leannoth*, from the fact that it means "to answer," most probably is a special order for an antiphonal treatment.

CHAPTER VI.

WIND INSTRUMENTS (*continued*).—GHUGGAB, OUGAB, OR UGAB.

HAVING spoken of the pipe, and of the possibility that the Hebrews knew of the double-pipe, we naturally come to those instruments which place a number of pipes under the control of the performer. And first it should be remarked that there is an essential difference between the *flûte à bec*, or flute with a beak, and the *flauto traverso*, which it was unnecessary to point out when these instruments were previously mentioned. It is this. In the former class, the performer has only to blow into the end, and the sound is produced by the air being led by the form of the interior against a sharp edge of wood termed the *upper lip*. In the *flauto traverso* (now the common flute), the player has *himself*, by adjusting the form of his lips, to force the air against the edge of one of the holes, which he thus temporarily makes into an *upper lip*. By comparing a penny whistle with a common bandsman's fife this difference of their construction will be very apparent. In the former, a piece of wood placed in the mouth-piece guides the column of air to the opening, where it is compelled to pass the under lip (the lower edge of the opening), so as to strike against the upper lip; but in the latter nothing of the sort is provided, the player making his mouth the *under lip*, and, as before said, the side of the hole the upper lip. It is plain, therefore, that

two classes of "manifold-pipes" can exist, the one corresponding to a collection of *flauti traversi*, the other to a collection of *flûtes à bec*.

Now, if we take any piece of a tube open at both ends, and blow against the sharp edge until a musical sound is produced, we are acting exactly on the same principle as does the player on the *flauto traverso*. And if now we place our hand so as to *close* the other end of the tube, the pitch will immediately fall to an octave lower than it was before, for physical reasons which need not be entered into here. In both cases, whether the tube is open or closed, we are blowing and producing the sound *on the same principle*.

A collection of tubes of different sizes stopped at one end, and blown into at the other as above described, forms the musical instrument known as Pan's-pipes, in the Greek *syrinx* (σῦριγξ), Lat. *fistula*. Whereas a collection of *flûtes à bec* of different sizes placed in a series of holes in a box, through which the air can be mechanically forced, constitutes what has for centuries been distinctively called the *organ*. This difference between these two instruments is of the more importance, because it is a commonly received notion that the *syrinx* is the parent of the organ. Unquestionably, as regards antiquity, the former instrument must be allowed to have priority, but this does not necessarily prove any connection between the two.

From what has been said, it will be easily imagined that a Pan's-pipe blown by mechanical means would really be a very scientific instrument; but on the other hand, when *flûtes à bec* were once commonly used, it would not require any special ingenuity or invention to suggest that several should be placed in a row over a box, and be blown one after another from the same supply of wind. Of course,

as each organ-pipe was only required to give one sound, there would be no necessity for finger-holes being made in it. Again, it must have been very soon discovered that pipes containing *reeds* could be as easily made to speak over a wind-box as flue-pipes.

The universality of the Pan's-pipe is as remarkable as its antiquity. To find a nation where it is not in use is to find a remarkable exception. In an ancient Peruvian

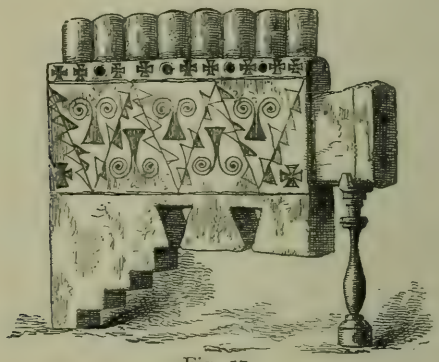


Fig. 57.

tomb a *syrinx* was discovered and procured by General Paroissen. A plaster cast of this interesting relic was lent for exhibition at South Kensington Museum in 1872, by Professor Oakeley of Edinburgh, by whose kind permission the engraving (Fig. 57) is given.

The description of the original, as given in the catalogue, is as follows :—"It is made of a greenish stone, which is a species of talc. Four of its tubes have small lateral finger-holes, which, when closed, lower the pitch a semitone." The Inca Peruvians called the syrinx *huayra-puhura.* The British Museum possesses one of these, consisting of fourteen pipes. The example shown in Fig. 58

has been selected in order to show how little even savage nations have departed from the earliest known classical form of the instrument. It represents the *syrinx* from the island of Tanna, New Hebrides. All must be so familiar with the many representations of Pan playing his river-reed pipes, that it is quite unnecessary to give an illustration of one of them. It should be said, however, that the commonest number of reeds used among the ancients was seven, but eight or nine or even more are occasionally found.

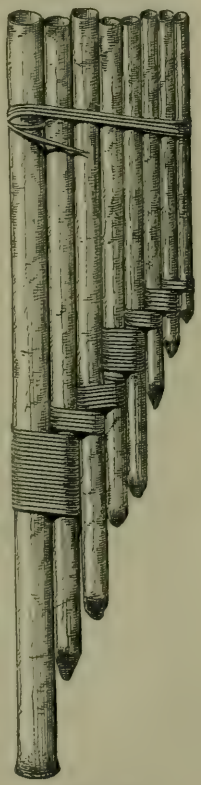


Fig. 58.

Was the *ugab* a *syrinx* or an organ? As the former seems to have been the more ancient of the two, and as *ugab* is included in the very first allusion to musical instruments in the Bible, it would seem reasonable to say at once that it was a *syrinx*, especially as this instrument was, and is to this day, commonly met with in various parts of Asia. Yet it would indeed be strange if such an instrument were selected for use in Divine worship; and that the *ugab* was so used is proved beyond a doubt by its mention in Ps. cl.: "Praise Him with the *minnim* and *ugab*." Its mention here in antithesis to a collective name for stringed instruments surely points to the fact of its being a more important instrument than a few river-reeds fixed together with wax. Let us not forget that we have but one and the same name for the single row of about fifty pipes, placed,

perhaps, in a little room, and the mighty instrument of 5,000 pipes, occupying as much space as an ordinary dwelling-house, and requiring the daily attention of a qualified workman to keep its marvellous complications properly adjusted. Each is an organ. May it not have been the case that the *ugab*, which in Gen. iv. 21 is mentioned as the simply-constructed *wind*-instrument, in contrast to the simple *stringed*-instrument, the *kinnor*, was a greatly inferior instrument to that which in Ps. cl. (before quoted) is thought worthy of mention by the side of a term for the whole string-power?

Even if it be insisted that the first-mentioned *ugab* was nothing more than a *syrinx*, are we, therefore, forbidden to believe that the mere name might have been retained while the instrument itself was gradually undergoing such alterations and improvements as to render it in time a veritable organ? That men's minds have from the earliest time striven to find out in what way many pipes could be brought under the control of a single player, there are indubitable proofs. A passage in the Talmud,[1] describing an instrument called *magrepha*, which was said to be used in the Temple, is exceedingly interesting. The word *magrepha* signifies "a fork," and the instrument was so named because of the similarity of the outline of its upright pipes to the prongs of a fork. This organ, for it is entitled to the name, had a wind-chest containing ten holes, each communicating with ten pipes; it therefore was capable of producing 100 sounds. These were brought under the control of the player by means of a *clavier*, or key-board. Its tones were said to be audible at a very great distance.

Supposing that the whole of this account is apocryphal, it still shows that in the second century such an instru-

[1] *Mishna*, Tr. Erachin., Ch. II., sections 3, 5, 6.

ment was not only considered *possible*, but believed, rightly or wrongly, to have actually existed at some previous period.

Let us now trace the various stages through which the organ has passed, while developing from what we should now consider a toy, to that noble instrument which makes our beautiful cathedrals and churches ring again with sweet sounds, and whose duty it is to guide and support the combined voices of many hundreds, or it may be thousands, of hearty hymn-singers.

Assuming that a series of wood or metal *flûtes à bec* had been constructed so as to give in succession the notes of a scale, and also that the wind-chest was pierced with holes

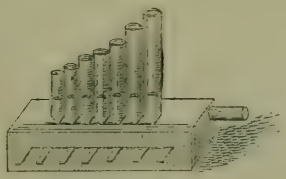


Fig. 59.

to receive them, the first thing required by the player would be a contrivance for allowing him to make any one he wished speak separately. As might be supposed, the simplest method of doing this is to place little slips of wood in such a position that they can either be pushed under the foot of the pipe, and so stop the current of air from passing into it, or be pulled out so as to admit the air.

Fig. 59 exhibits this most simple piece of mechanism, and very possibly shows what the *ugab* might have been at some period of its existence. A pipe at the side of the wind chest points out the fact that the commonest bellows of the period was considered capable of supplying the required current of air. The whole construction is in a more

advanced state in the instrument depicted in Fig. 60. Not only are its pipes more numerous, but it has bellows specially adapted to its requirements. While one bellows is being replenished, the other is still able to support the

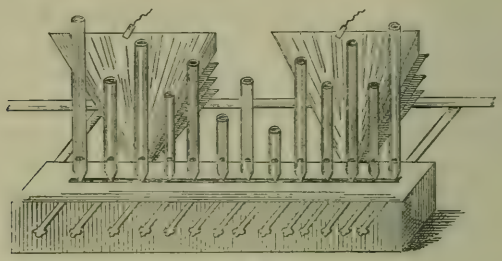


Fig. 60.

Fig. 61.

sounds, so there is no awkward pause while the instrument is taking breath.

In the next illustration (Fig. 61), which is from a MS. Psalter of Eadwine, in the library of Trinity College, Cambridge, the organ has begun to assume a more dignified form. There is an attempt at an ornamental case, and

judging from the number of blowers required, the music must have been rapid, or the sounds powerful.

As soon as these instruments became large and not easily movable, the terms *positive* and *portative* organ came into existence—the former being an instrument which, owing to its size, had to remain stationary; the latter, one that could be carried about. In the sixteenth century, these portable organs were called *regals*, the exact derivation of which is somewhat uncertain. They formed a very important element in ecclesiastical processions, as their cases were frequently elegantly decorated. Fig. 62 is an illustration of a German *positive* organ of the sixteenth century, the shutters of which are also elaborately painted. This instrument has iron handles, by which it can be moved, but it is too large to have been of the portative class. The bellows, which are behind it, and so not seen in the figure, are very similar both in position and shape to those seen in Fig. 60.

In attempting to form some opinion as to the degree of excellence reached by builders of ancient (not mediæval) organs, it is very necessary to bear in mind that the principles on which instruments of this class are constructed have not undergone any radical change since the earliest times. Indeed, one of our huge modern organs exhibits an ingenious expansion of old ideas, rather than the invention of new. Let us suppose, for example, that we have two rows of pipes (*i.e.*, two stops), one set of metal, the other of wood, standing in holes in the top of a box, which is supplied with air (more or less compressed) from a bellows. Only two problems present themselves: first, how is the player to make any particular pipe speak while its neighbours stand silent; next, how is the player to have power to play on whichever of the two sets of pipes he may wish. When these questions are answered we shall have discovered the

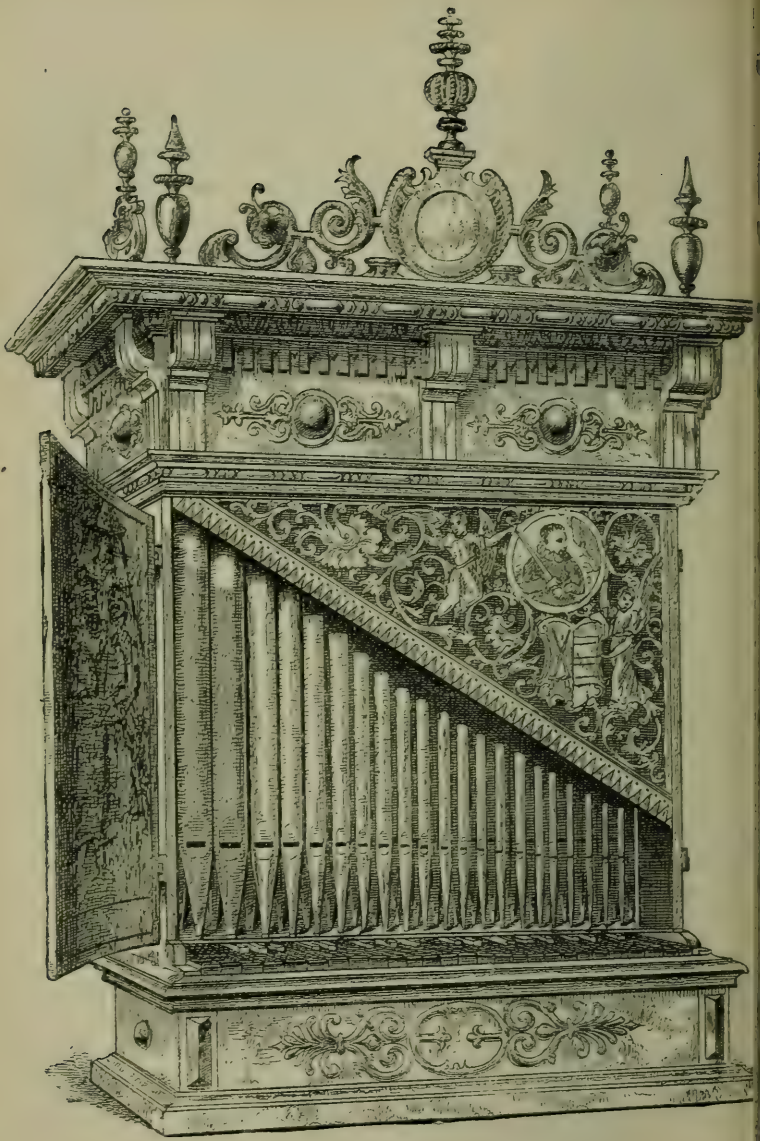
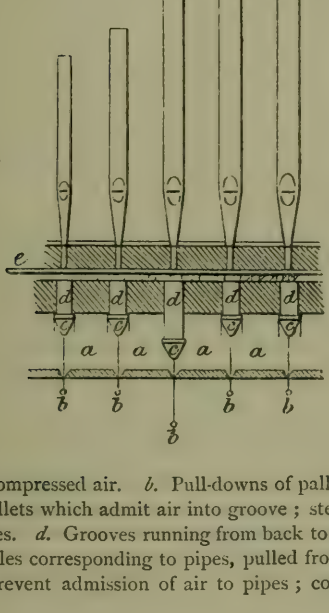


Fig. 62.

two important principles on which *all* organs have been and are constructed. The modern names for the two pieces of mechanism which bring about these results are, respectively, the *pallet* and the *slider*. In Fig. 59 the simplest method of placing particular pipes under the player's control was shown. Slips were pulled in and out from under the foot of the pipes. The utter impossibility of obtaining from such

Fig. 63.



a. Chest of compressed air. *b*. Pull-downs of pallet connected with the keys. *c*. Pallets which admit air into groove ; steadied by moving between two wires. *d*. Grooves running from back to front under pipes. *e*. Slider with holes corresponding to pipes, pulled from right to left, so as to admit or prevent admission of air to pipes ; connected with the stop-handles.

a system a rapid succession of sounds, or the simultaneous movement of several slips so as to produce a chord, will be at once evident. In modern organs there lies under the foot

of the pipe, some little distance below it, a small flat piece of wood covered with leather, which is hinged at one end and kept in position by a spring. This is the pallet (see previous page, Fig. 63). A stroke on one of the keys pulls down the free end of the pallet and allows air to rush into the pipe. When the finger releases the key, the spring immediately holds the pallet tightly against the orifice.

But to have a pallet under every pipe in a large organ would be an absurdity; therefore, in arranging two sets of pipes, those giving the same note (or likely to be required for simultaneous use) are placed behind one another *over the groove into which the pallet admits the air.* If now a key is struck, the pipes which give the same note in both our stops will be sounding at once. Hence the necessity for our slider-action, which is constructed thus. A strip of wood runs continuously under each row of pipes, having holes at distances exactly corresponding to the distances between the feet of the pipes. If we push this strip, which is called the *slider*, into such a position that its perforations and the openings leading to the feet of the pipes exactly *coincide*, then air can pass into the pipes when the pallet opens. If, on the contrary, we push this strip of wood so that none of its perforations coincide with the entrances to the feet of the pipes, no air can reach a pipe, even if the pallet be opened. In the former case we say a stop is *out*, in the latter that it is *in*. The diagram (Fig. 63) will make all this easily understood.

How simple are these two great constructive principles of the organ! And yet, when once known to the ancients, there remained no obstacle to their building organs of any magnitude; for the modern organ with its three or four manuals in tiers, and its pedal-organ, is nothing more or less than a collection of as many organs all built on these two

principles; and, as before remarked, the ability and ingenuity of modern organ builders has been directed more to the easiest means of bringing these manifold organs under one performer's control than to the discovery of a radical alteration in the principles of their construction.

Who can venture to say that these simple principles were never mastered by the ancients? If the reader will turn back to our mention of the magrepha, he will find that such contrivances *must* have been known at least as early as the second century; and there seems little reason to believe that any sudden and unexpected discovery led to their adoption. In the case of all other musical instruments, a gradual but very perceptible growth in the ingenuity of their construction is to be traced. Why not so with the *ugab?* The only conclusion to be drawn from all this is, that the *ugab* must be considered as an instrument of importance and magnitude in direct proportion to the period of its existence. To some this may seem a very contemptible conclusion, but it is not so. The use of the word extends over a vast period, and those writers, therefore, who describe it as one unvaried, unchanging instrument are, judging from what the history of music teaches us, treading on untenable ground.

It is remarkable that the latest improvements in the construction of the organ should have been in its *bellows*. One would have supposed that so important an element in its existence would have been perfected early in its use. Such, however, is not the case. It must be generally known that as the top of a common bellows, such as a blacksmith's, descends, if left to itself, the pressure on the air contained inside it increases, because the weight of the top and sides is resting upon a constantly diminishing quantity and therefore *surface* of air. It is also a well-

known fact that organ-pipes change in their pitch to a considerable extent, according to the pressure of the air which is passing through them. The ancients, then, if they had only one such simply-formed bellows, could have produced no sounds at all while the top of the bellows was being raised by the blower, as this process took off the pressure on the inside air; and even supposing that several such bellows were adapted to one organ in such a manner that while the contents of some were being utilised by the organist the others were being re-filled, even then the pressure of the air must have been far from constant, unless the ingenuity of the blowers counteracted the influence of natural laws. A glance at Fig. 60, on page 100, will show this plainly. These old-fashioned bellows were called *diagonal*. The bellows of modern organs, called *horizontal*, practically consist of the old kind of bellows (now called the feeders) *and* a reservoir just above them, which, owing to valves at its under-side, cannot drop while the feeders are being replenished. And in order to still further equalise the pressure, the ribs of our bellows are so arranged that while one set meet inwardly the others meet outwardly. It seems almost surprising that horizontal bellows were not made until the sixteenth century. Some ascribe their introduction to Lobinger, of Nuremberg, in 1570.

The weight of the human body was very soon utilised by blowers for the purpose of inflating their bellows, in preference to the muscles of the arm.

The Saxon name for a bellows was *bilig* or *blast-belg*, and like it is the old German *Blasebalg*. Hence a bellows-blower was called a bellows-treader (*Balgentreter*). Fig. 64, in which this process is rather amusingly illustrated, is given by Dr. Rimbault, from Coussemaker's article in Didron's *Annales Archéologiques*. The awkward pause

which must have taken place when the weight of the *treaders* had emptied the bellows, and before it was refilled, can be imagined. The diagonal bellows and their treaders remained in existence quite up to the end of last century. The organ in the comparatively modern cathedral of St. Paul's, London, was blown after this fashion. It possessed four such bellows, each measuring 8 feet by 4. But other large organs had as many as eight, ten, twelve, and even fourteen. The bellows-treader used

Fig. 64.

to walk leisurely along, and throw his weight upon them in rotation. To this day many of the German organs are blown by the weight of the blower's body, although the bellows themselves are of a modern form of construction. It would be quite unfair to the reader to leave the subject of ancient organs without saying a few words on the much discussed *water-organ* or *hydraulic-organ*, which is carefully described by Vitruvius Pollio, the celebrated architect of the Augustan æra. As explanatory drawings were not fashionable in those days, it is quite impossible to discover what his elaborate and lengthy description

really describes. But there can be no doubt that the lasting popularity of water-organs was owing to the fact that, by some agency of water, the pressure of the air was equalised, and the defects just noticed as incidental to diagonal bellows remedied. Considering the natural dread which a modern organ-builder has to the approach of water to his instrument, although he is content to work a hydraulic-engine and fill his bellows at a distance, the reader may well wonder how and why ancient organ-builders courted the use of this hostile element. Assuming that the builders of water-organs were aware of that property of water which makes it, if enclosed in a small tube passing downwards and into the base of a vessel of *any* given area, able to exert on *every* portion of that area equal to itself any weight equal to that added to itself, we can, perhaps, offer some such explanation of their mechanism as the following :—Suppose two oblong reservoirs of air to be made with their tops fixed, but with movable bottoms, and joined together with a cross-bar in such a manner that the bottom of one must rise as the bottom of the other falls. Suppose also that ordinary valves are placed in the top of each, so that as the bottom rises the valves close, and the air can only escape through a passage into the box on which stand the pipes; while, on the other hand, as the bottom falls the valves drop too, and admit a fresh supply of air through their openings. Now, if enclosed water were to be admitted below the bottoms of the reservoirs with a mechanical arrangement which should not only stop the supply of compressed water when the bottom of each reservoir had reached its highest point, but also let the water escape through a waste-valve at the same time, it is not difficult to conceive of a very equal and strong supply of air being sent to the pipes as the two reservoirs were filled and emptied in turn. As long

as the water continued to be pumped to the higher level, so long would the supply of air last. There is much in the account of the instrument, as given by Vitruvius, which carries out this view, but parts of his description are unquestionably somewhat figurative. In opposition to the explanation of water-organs here attempted, it may be urged that had the Romans been aware of the peculiar properties consequent on the gravity of liquids, they would never have taken the trouble to build, as they did, massive and beautiful aqueducts when a closed pipe or tube would not only have brought the water safely down into the valley, but *up the other hill-side to the same level.* Also, that a hydraulic-organ is sometimes spoken of as playing *by itself*, and how can this be made consistent with the account here given, unless the organ-blower used to be considered the real player, while the man at the pipes was looked upon as a mere nonentity? And, again, it is occasionally mentioned that these instruments were worked by *hot* water, and if the water were simply used to obtain a force from its special laws of gravity, why in the world need it first be boiled?

Another explanation of the structure of a water-organ may be hazarded. If into a perfectly closed chamber of air a water-pipe is introduced, the air will, of course, be compressed in proportion to the quantity of water forced in. If pipes were placed over such a chamber, with a slider under each pipe, under the control of the player, the admission of the air from the chamber would unquestionably cause them to speak, and with two such chambers a tolerably constant supply of compressed air could be obtained, one providing this while the other was being emptied of its water.

This digression on the hydraulic organ is not altogether out of place here, as enthusiasts are not wanting who would make us believe that this instrument was among those

known and used by the Jews in their Temple worship.[1] Several authors have attempted to give pictures of them, and, it is not too much to say, have seriously taxed their inventive powers in so doing. Among them may be quoted

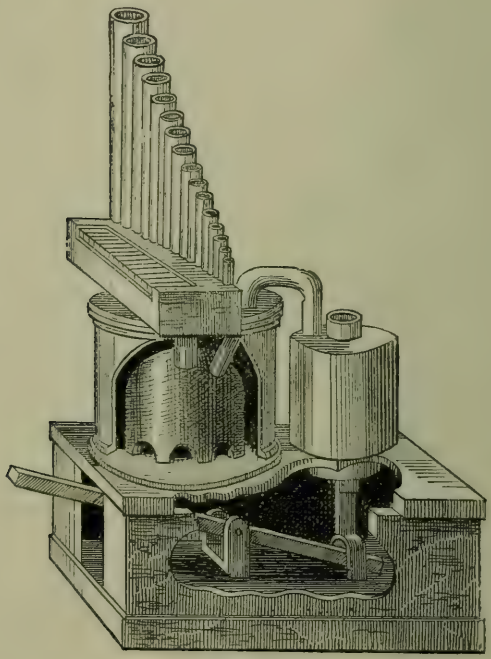


Fig. 65.

Kircher, Isaac Vossius, Perrault (Commentary on Vitruvius), and Optantianus. A rude representation of one is also to be seen on a coin of the time of Nero, preserved in the Vatican. That here given (Fig. 65) is from Häuser's

[1] Chappell states that it was invented in the third century B.C. See his *History of Music*, p. 326.

Kirchen Musik, and is to be found, with much more valuable information, including the text of Vitruvius' account, in

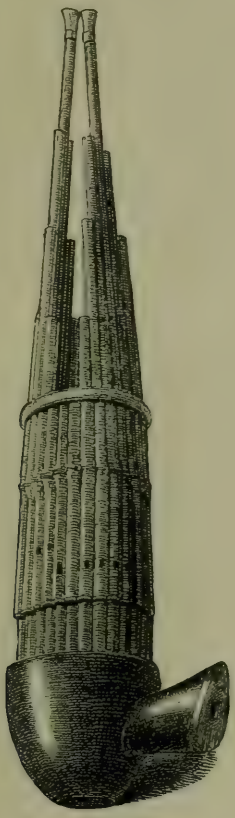


Fig 66.

Rimbault's well-known *History of the Organ.* It is probably purely fanciful ; the reader is therefore likely to be, after studying it carefully, as wise as he was before.

If we turn to that nation whose careful preservation of old traditions in art renders their present customs unusually

Fig. 67.

valuable —the Chinese—we are struck by a remarkable fact, namely, that the organ they use is constructed on a totally different principle to that which has grown up in Europe.

It is blown by being placed against the mouth of the performer, a truly primitive method, and one which, if adhered to, must have utterly prevented any great improvements in the instrument. The player finds room to pass his hand round into the back of the instrument, and so reaches the pipes which he has to stop, for by *stopping the holes*, the pipes are made to speak.

Fig. 66 represents a *cheng* or Chinese organ, and in Fig. 67 is shown the position in which it is held when in use. The most important difference between the cheng and our organ is that its sounds are produced by *free reeds*. The method by which sound is produced in an *ordinary* reed-stop on the organ is this: the metal *tongue* of the reed is rather larger than the orifice through which the air is forced, and is slightly curved at its extremity. When, therefore, the current of air is directed to it the tongue is forced down over the orifice, but its own elasticity causes it to return, when the air again forces it down, and so on; the number of these backward and forward motions being of course the number of vibrations necessary to produce the particular sound required. But in the case of the *free reed*, the *tongue* is not so large as the orifice through which the air is forced; when, therefore, the current of air is directed against it, it bends, and *passes through the opening*, but is immediately restored to its position, as in the ordinary reed, by its own elasticity. That is to say, the tongue of the *common reed* beats against the opening, that of the *free reed* passes in and out of it. It is almost incredible that such a simple source of obtaining sweet sounds should have remained so long unused in Europe. It is said that an organ-builder, by name Kratzenstein, of St. Petersburg, saw a cheng, and made some organ stops on this principle, about the middle of the last century. But the real value of free reeds does not seem to have been appreciated until Grenié, of Paris, in 1810,

discarded the pipes and used the reeds alone, thus inventing the *harmonium*. Perhaps few of the many thousands who play upon this cheap and (now) sweet-toned instrument are aware that it is a true descendant of a cheng. Accordions and concertinas form the connecting link between the cheng and harmonium, as they combine the portability and free reeds of the former, with the bellows-system of the latter. The cheng contains from thirteen to twenty-one pipes, and is probably one of the oldest wind-instruments now in use. Some have gone so far as to call it "Jubal's organ," but had it been in use among the Jews, it is difficult to believe that all traces of it would be lost among the nations which were in close contact and inter-communication with them, especially as it is exceedingly light and easily carried, and would therefore in all probability have been preserved by them in their wanderings and captivities. It is improbable, therefore, that the cheng, ancient as is its origin, is allied to the Hebrew *ugab*, and the latter was probably at the earliest times a collection of pipes of the very simplest character, but growing into more importance as from time to time improvements were made in its construction. We have seen that the Jews were not unwilling to adopt the improved form of stringed instruments which they sometimes found in neighbouring nations, and there is no special reason for supposing that in the case of the *ugab* no attempts were made to improve upon the form invented by Jubal. An organ, in our modern sense of the name, it hardly could have been, unless *keys* were invented by the ancients; but a collection of pipes it certainly was, which could be made to sound at the will of the player, albeit, perhaps, by clumsy mechanism. In the Septuagint the word *ugab* has three distinct renderings — κιθάρα (*cithara*) in Gen. iv. 21; ψαλμός (*psalmus*) in Job xxi. 12, and xxx. 31; and ὄργανον (*organum*) in Ps. cl. 4. That learned scholars should have

ventured to translate one Hebrew word by three names of such totally different significations as "guitar," "psaltery," "organ," is a sufficient warning as to the danger of trusting to translations. In our Authorised Version it is uniformly rendered as "organ"—"Such as handle the harp and organ" (Gen. iv. 21); "Rejoice at the sound of the organ" (Job xxi. 12); "My harp (*kinnor*) also is turned to mourning, and my organ (*ugab*) into the voice of them that weep" (Job xxx. 31); "Praise Him with the timbrel and organ" (Ps. cl. 4). But in the Prayer-book version it is in this last passage rendered by "pipes:" "Praise Him in the strings (*minnim*) and pipes (*ugab*)." Here the word is perhaps used to express wind-instruments generally: "Praise Him with stringed instruments and wind instruments." The German version of the Bible translates *ugab* in every case by "pipes" (*Pfeifen*).

As organs form, in our days, such an important element in the musical part of Christian worship, a few words on the probable date of their dedication to this sacred function may not be unwelcome. It is generally said that they were introduced into Church services by Pope Vitalianus in the seventh century. But on the other hand, mention is found of an organ which belonged to a church of nuns at Grado, before the year 580. This instrument has even been minutely described as having been two feet long by six inches deep, and as possessing thirty pipes, acted upon by fifteen keys or slides. It is very doubtful if they were familiar to the Romans, although an epigram of Julian the Apostate alludes to them. It seems, however, to be tolerably authenticated that one was sent by Constantine in 766 as a present to Pepin, King of France. Improvements in their construction are attributed to Pope Sylvester, who died 1003. When we reach the time of Chaucer their use must have been common, for he thus speaks in his *Nonnes Preestes*

Tale (Nun Priest's Tale) of a crowing cock "highte chaunticlere."

> "His vois was merier than the mery orgon
> On masse daies that in the chirches gon."

The very existence of organs was imperilled in the troublous times of the Rebellion, and Puritans were no friends to their re-introduction.

Opinions differ as to the derivation of the word *ugab*. Buxtorf traces it to a root *agabh*, which signifies "to love," and therefore defines it as "instrumentum musicum, quasi *amabile* dictum." By another author it is derived from an Arabic root *akab*, "to blow." The only passages in Holy Scripture in which the *ugab* is mentioned are those above quoted.

Mashrokitha or *mishrokitha* is the name of a musical instrument mentioned only in verses 5, 7, 10, and 15 of the 3rd chapter of Daniel. It has been described by different writers as a double flute, pan-pipes, and also an organ. As an example of the thoughtless manner in which illustrations are appended to supposed descriptions of ancient musical instruments, it may be mentioned that the figure of a *magrepha*, as given by Gaspar Printz (1690) has been given in a well-known work on Biblical literature as an illustration of a *mishrokitha*. Considering that these instruments had not only no claim to similarity of construction, but also were used by two distinct nations at an interval of about 600 years, the appropriateness of the figure of one (which by the way was in the first instance purely imaginary) as an illustration of the form of the other is, to say the least, somewhat remote. The word *mashrokitha* is traced to a root *sharak*, "to hiss" (*sibilare*), and as a certain amount of hissing necessarily accompanies the use of pan-pipes, the *mishrokitha* has been generally thought to be an instrument

of that class. It is indeed rendered in the Greek by σῦριγξ (*syrinx*). The fact that the Hebrew translation of *mashrokitha* was *ugab* does not go to prove that the *ugab* was a *syrinx*, as we have had sufficient doubt thrown on the trustworthiness of translators by the manifold renderings of *ugab* itself.

CHAPTER VII.

WIND INSTRUMENTS (*continued*).—SUMPONYAH, SAMPUNIA, SUMPHONIA, SYMPHONIA.

THIS instrument is among those enumerated in Dan. iii. 15. In speaking of the *psanterin* or dulcimer, we had occasion to regret that the word *symphonia* should have been translated by "dulcimer" in our Authorised Version, when this word would have represented more properly *psanterin*. The symphonia is now generally supposed to have been a *bagpipe*. The reasons for this belief are, that the meaning of the word "sounding together" is not inapplicable to the union of melody and drone which it produces, and also that the Italians have to this day a bagpipe called *zampugna* or *sampogna*, and that *chifonie* or *symphonie* was an instrument of the same class used in the Middle Ages. Of the antiquity of bagpipes there is ample evidence. Varieties of it seem to have been common in all parts of Asia and Europe. The Greeks called it ἀσκαυλος (*ascaulos*), which means the "leathern-bottle" pipe (from ἀσκός, a leathern bag or bottle, and αὐλός, a pipe). The Romans gave it a name having much the same meaning—*tibiæ utricularicæ* or *utricularium;* in Germany it is the *sacpfeife*, corresponding exactly to our bagpipe; in Italy *sampogna*, *piva* (in Dan. iii. 5, &c., the Italian translation has *sampogna*), or *cornamusa*, which last means apparently a hornpipe, alluding probably to the material of which the "pipe" part

was sometimes made, not only in Europe, but amongst the Arabians. From the Italian *cornamusa* the French adopted *cornemuse*, and in both countries the diminutive *musetta* and *musette* (a little *musa* or pipe) seems to have been generally used. A piece of music written in the style of bagpipe music came afterwards to be called a musette. By some it is said to have been also called *chalumeau* by the French; but it is probable that this name was only so far used in connection with the bagpipe as to describe the pipe which was pierced with finger-holes, in opposition to that in which the

Fig. 68.

drone-reed was inserted. The Gaelic name for bagpipe is *piob morh;* the Welsh *pibau.* Fig. 68 shows an Arabian instrument of this class, called by them *souqqarah* or *zouggarah.* It is of goat-skin, and the two pipes with finger-holes are tipped with horn. The scale consists of four notes, A to D of the treble stave, both pipes being in unison. It will be noticed that the goat-skin reservoir is filled by means of the little pipe seen on the left-hand side of the illustration, which is placed in the mouth of the performer. There are, in fact, two kinds of bagpipe, if viewed as to their construction. In the one the reservoir is supplied from the mouth of the performer, who blows

into it through a pipe and mouthpiece; in the other the reservoir is so constructed that the pressure of the elbow against its side will force the air which it contains into the sounding-tube or *chanter*, as it is termed. It will be seen that the *souqqarah* (Fig. 68) belongs to the former of these kinds. The bagpipe shown in Fig. 69, which is an Indian instrument called *tourti* or *tourry*, is of the same

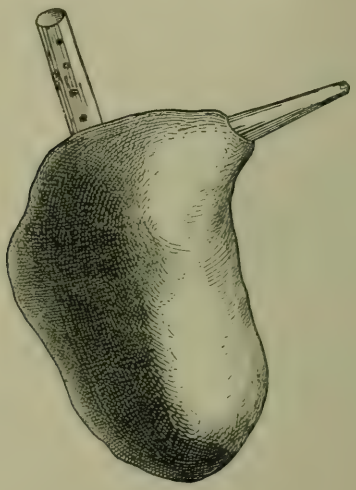


Fig. 69.

kind, the inflation of the reservoir being brought about through the mouthpiece. That its chanter has only four holes is probably a proof of its great antiquity. Another instrument of the same sort, called a *zitty*, has seven holes. So, too, the *magondi* (Fig. 70), used by the Indian snake-charmers when they exhibit their almost Orphean influence over the reptiles, is supplied with air from the mouth, only in this case there is no intermediate tube. The reservoir is made of the outer coating of a gourd, the small end of

which is pierced for the admission of the air. The two tubes appear to have four holes each, but one has seven, three more being pierced on the reverse side. The tone is said to be soft and somewhat sweet.

The Persians have their *nay* or *nëï-ambanah*, which,

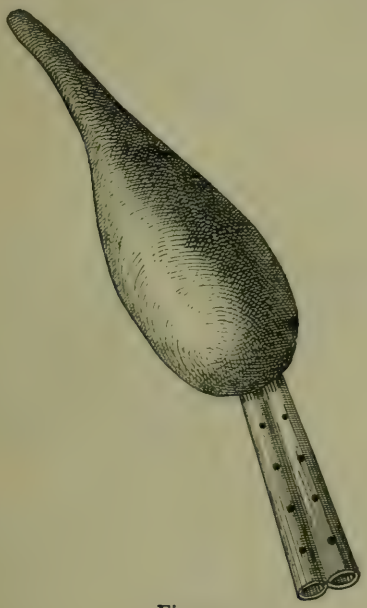


Fig. 70.

though somewhat different in form, is of the same construction as a bagpipe.

It is interesting to note the close relationship between the *arghool* of the Egyptians, as before described (pp. 85, 86), and the *souqqarah*. The reservoir is the only distinctive feature of the *souqqarah*, for *arghool* is of two kinds, like its relations of the bagpipe family, having sometimes two

pipes tuned to two unison scales; at others, two pipes, one for the playing of a tune, the other for a drone or bourdon.

The broad distinction between bagpipes blown by means of the mouth and those blown by "pumping" with the elbow, before mentioned, is, however, exhibited much nearer home. Irish bagpipes are inflated by the elbow, Scotch by the mouth. Both have their special advocates, but it is said that the most ancient Irish instruments of this class were blown, like the Scotch, by the mouth. The Irish

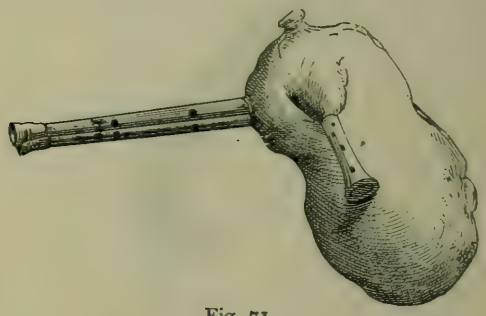


Fig. 71.

lay claim to the superiority of their bagpipes on the ground of the tenor chords which they are capable of producing.

The Roman *tibiæ utricularie* must have been of a lower pitch than the ordinary bagpipe, judging from the appearance of one which was found depicted on an ancient bas-relief in the court of the palace of Santa Croce (Fig. 71). The almost disproportionate length of the tubes suggests very deep sounds. The *sampogna*, the modern Italian form of the *utricularium*, is commonly played on the Campagna and the surrounding hills. Fétis remarks that when some of these poor *sampognatori* or *sampognari* migrated to Paris some years ago, in the hopes of getting a livelihood, they

were popularly called *pifferari*, but, of course, wrongly so, as the *pifferari* were oboists, not bagpipers. Some are occasionally to be seen about the streets of London.

The Assyrian records of this instrument are unfortunately very scanty. One is said to be shown in Fig. 72 but the reader will probably think that it might with equal justice be said to represent many other things. The Phœnicians were well acquainted with bagpipes; hence it is probable that this is the source from whence the Greeks obtained them, or imitated their method of construction, and that the Romans

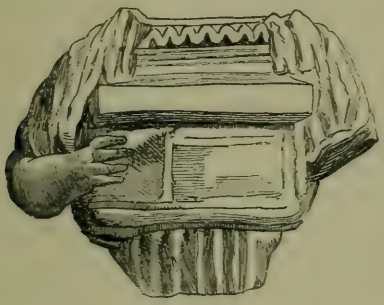


Fig. 72.

copied them from the Greeks. The Syrian Greeks called it σαμπονία (*samponia*), and the question at once arises—was this an imitation of *sumponyah*, a genuine Chaldaic name, or were both *samponia* and *soumponiah* corruptions of the Greek *symphonia* (συμφωνία); or, to put the question in other words, did the Greeks give Greek names to Chaldee musical instruments, or did the Chaldees borrow their instruments from Greece? This difficulty has been alluded to on page 42 in chap. iii. It is completely out of the sphere of the musician, and must be left for scholars and theologians to settle, or perhaps it would be safer to say, to discuss. As the *symphonia* is *only* mentioned in that

catalogue of musical instruments given in Dan. iii. with such strange iteration, it must be presumed that the captive Jews did not so highly value its merits as to wish to adopt it. But harsh as the tones of a bagpipe are when heard in a small enclosed place, there can be no two opinions as to the romantic and beautiful effect they produce when heard in the midst of wild scenery; and when large numbers are played together the result is even imposing and grand. The repetition of the phrase "all kinds of musick" (Dan. iii. 5, 7, 10, 15) would lead us to believe that a very large company of musicians was gathered together on that memorable day when Nebuchadnezzar tried to enforce idol-worship; but though the instruments themselves were of a barbarous type, we may still believe that the massive volume of sound produced by so many playing together must have been awe-inspiring and terrible.

CHAPTER VIII.

WIND INSTRUMENTS (*continued*).—KEREN, SHOPHAR, KHATSOTSRAH.

THESE are the names of the three important Hebrew trumpets. The first, evidently, either actually was, or at least originated from, that most ancient of wind instruments, the horn of an animal. *Keren* and *shophar* are sometimes used synonymously, notably so in the account of the capture of Jericho (Josh. vi.). But in this same account there is affixed to *keren* the word *jobel*, making the whole a "jobel-horn." Although this is translated "ram's horn" in our version, and although it has been suggested that *jobel* in Arabic, if not in Hebrew, might signify a ram, yet on the whole it seems probable that *jobel* is the source of our word *jubilee*, and that the expression simply points to the fact that the instrument was used on great solemnities, and was a *jubilee-trumpet* (τοῦ ἰωβήλ). The actual horns of animals were in very early times imitated in metal or ivory. In the latter case a tusk was hollowed out and often elaborately carved. They were called in the Middle Ages *oliphants*, or elephant-trumpets, from their material. The Ashantees to this day use tusks for this purpose, only, strangely enough, the instrument is blown at a hole in the side (like a *flauto traverso*), and not at the small end. In 1 Chron. xxv. 5, after giving a list of those set aside by David to play upon the *keren*, the historian says, "All these were the sons of Heman, the king's seer in the words of God, to lift up the horn." Again, translated in our version by "cornet"

(though in the Septuagint by σάλπιγξ), the word occurs in Dan iii. 5, &c. Only in these passages is mention made of the *keren* as a musical instrument, although the word often occurs with other meanings, and is frequently used as figurative of "strength." In Fig. 73 are shown various forms of the *keren*.

The *shophar*, judging from its very frequent mention,

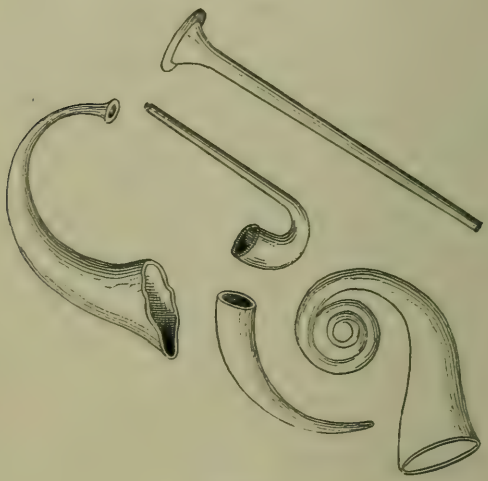


Fig. 73.

extending in the pages of the Bible from the Book of Exodus to that of Zechariah, must have been more commonly used than the *keren*. It was the voice of a *shophar*, exceeding loud, issuing from the thick cloud on Sinai, when, too, thunders and lightnings rolled around the holy mount, which made all in the camp tremble. When Ehud's personal daring had rid Israel of a tyrant, he blew a *shophar* and gathered the people together to seize the fords of Jordan towards Moab. Gideon used the

instrument, and Saul also (1 Sam. xiii. 3), and many other of Israel's warriors, to rouse and call up the people against their enemies. But it was not confined to military use, for "David and all the house of Israel brought up the ark of the Lord with shouting and with the sound of the *shophar*" (2 Sam. vi. 15). It is mentioned three times in the Psalms: "God is gone up with a merry noise, and the Lord with the

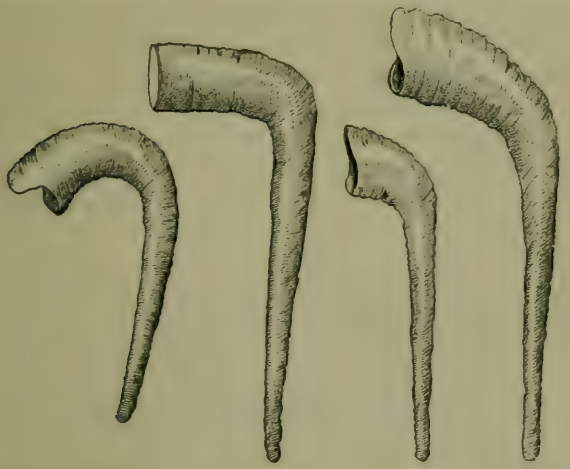


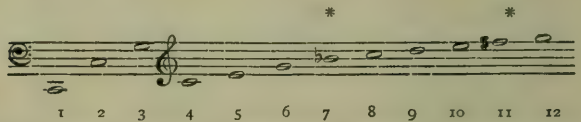
Fig. 74. Fig. 75. Fig. 76. Fig. 77.

sound of the *shophar*" (Ps. xlvii. 5); "Blow up the *shophar* in the new moon" (lxxxi. 3); "Praise Him in the sound of the *shophar*" (cl. 3).

The *shophar* is especially interesting to us as being the only Hebrew instrument whose use on certain solemn occasions seems to be retained to this day. Engel, with his usual trustworthy research, has traced out and examined some of these in modern synagogues. That shown in Fig. 74 is from the synagogue of Spanish and Portuguese Jews, Bevis Marks, and is, he says, one foot in length. Fig. 75 shows one used in the Great Synagogue, St. James's Place,

Aldgate, twenty-one inches in length. Both are made of horn. Figs. 76 and 77 Engel gives in his valuable *Music of the most Ancient Nations*, from Saalschütz. The first is a ram's horn, the second that of a cow. On these instruments signals or flourishes are on certain occasions played, the music of which it is unnecessary to give, as they are well known as the simplest progressions which such tubes are capable of producing. All such tube-instruments can only give a series of sounds called natural harmonics or overtones, which are produced in their special case by forcing (by gradually increasing the pressure of air from the lips) the column of air they contain, into two vibrating parts; then three, four, five, six, and so on.

Here is the series of notes which can be produced by a trumpet *in C*.



The notes marked * are not in tune with the sounds thus ordinarily represented, and are not therefore used, except among barbarous nations, although they can be sometimes heard in a *Ranz des vaches* or *Kuhreihen* among the Alps.

The relation of the intervals of this series remains unaltered for all open tubes, only the pitch can vary; thus a trumpet *in D* would give D, D, A, D, F♯, &c. The ordinary orchestral trumpet has the means of making the note No. 11 either truly natural or truly sharp.

The series of sounds given above (varying in pitch, not in relation) was therefore the actual scale of the *Keren*, *Shophar*, and *Khatsotsrah*.

When a tube-instrument is required, on which a chromatic series of sounds can be played, *pistons* must

be used as in our modern *cornets*, or slides as in our trombones. Tubes with slides are more ancient than generally supposed. Fig. 78 shows Chinese instruments of this class.

The *khatsotsrah* is generally thought to have been a straight trumpet, with a bell or "pavillon," as it is termed. Moses received specific directions as to making them. "Make thee two trumpets of silver; of a whole piece shalt thou make them: that thou mayest use them for the calling of the assembly, and for the journeying of the camps." In Ps. xcviii. 6 the *khatsotsrah* and *shophar* are brought into juxtaposition: "With *khatsotsrah* and sound of *shophar* make a joyful noise before the Lord the King;" or, as it incorrectly stands in the Prayer-book version, "With trumpets also and shawms," &c.[1] In this passage the Septuagint has it, *Ἐν σάλπιγξιν ἐλαταῖς, και φωνῇ σάλπιγγος κερατίνης*, "With ductile trumpets, and the sound of horn-trumpets." So, too, the Vulgate: "In tubis ductilibus et voce tubæ corneæ." The word *mikshah*, which is applied to the description of the *khatsotsrah* in Numb. x. 2, which means "rounded" or "turned," may either apply to a complete twist in the tube of the instrument, or, what is more probable, to the rounded outline of the *bell*. But if the former is the real interpretation of the epithet, it would make it more like a trombone, and similar in form to that depicted on the Arch of Titus. But, on the other hand, the account given by Josephus points out the latter characteristic of shape. He says, "Moses invented a kind of trumpet of silver; in length it was little less than a cubit, and it was somewhat thicker than a pipe; its opening was oblong, so as to permit blowing on it with the mouth; at the lower end it had

[1] The word *shawm* is a corruption of *chalumeau*, and signified a primitive clarinet or oboe.

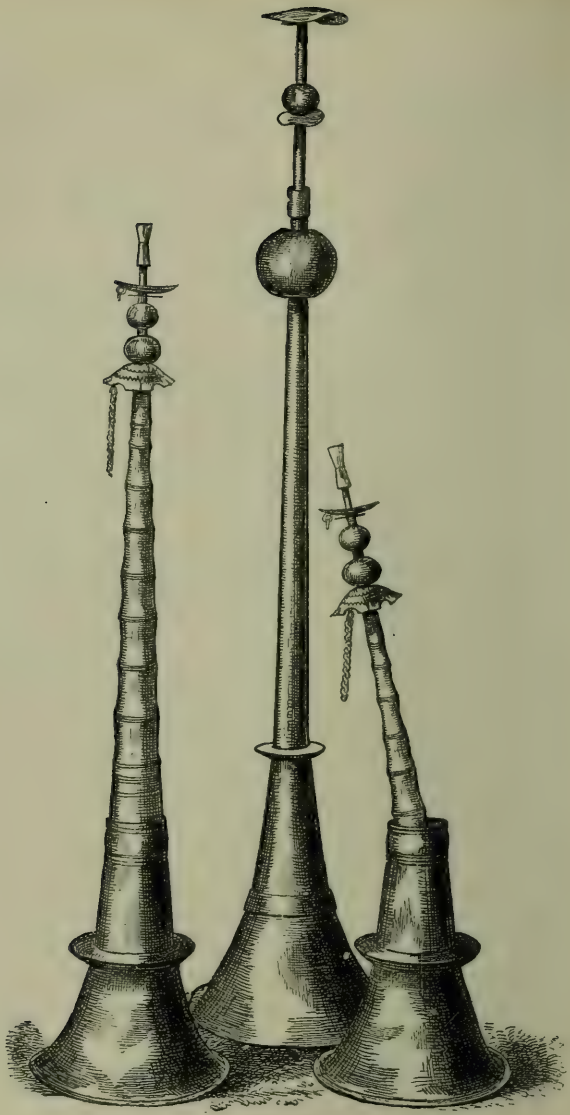


Fig. 78.

the form of a bell, like a horn." It seems chiefly to have been brought into use in the Hebrew ritual, but was also occasionally a battle-call, and blown on other warlike occasions. It was the sound of the *khatsotsrah* which made the guilty Athaliah tremble for her safety and rend her clothes, crying, "Treason! treason!" Silver trumpets have always been associated with dignity and grandeur, whether blown before a pope in the ritual of the magnificent St. Peter's, Rome, or carried, as in this country, by royal trumpeters, or by a few favoured regimental bands. In Figs. 79 and 80 two coins are shown, on which, surrounded by a motto, "the deliverance of Jerusalem," trumpets are

Fig. 79.

Fig. 80.

delineated. These instruments have been described as specimens of the *khatsotsrah*, with much probability of truth.

The Assyrians appear to have used trumpets, as Fig. 81 plainly shows; but there are at present no records of their having trumpets with a bell mouth. Figs. 82 and 83 prove, however, that such terminations to tubes were not unknown to the Egyptians. The Romans had at least three varieties of trumpet, the most powerful of which was called *tuba*. It was used as a war-trumpet. Fig. 84, from a bas-relief in the Capitol, exhibits a Roman blowing a trumpet at the triumph of Marcus Aurelius. Ancient trumpets, which were usually formed of one piece only, could not possibly be adjusted to any variety of pitch,

and therefore must have been with difficulty associated with other instruments. This difficulty is overcome in modern tube-instruments, not having slides or pistons (as, for instance, the simple French Horn or Trumpet) by

Fig. 81.

changing the *crook*, and so lengthening the tube or shortening it, as to adjust it to a required pitch.

The verse of the Psalms before quoted (xcviii. 6) is the only one in which mention of the *khatsotsrah* is made by the Psalmist. The first allusion to this instrument in Holy

Scripture is where Moses is commanded to make two of silver (Numb. x. 2); the last in Hos. v. 8, where it is used

Fig. 82.

Fig. 83.

Fig. 84.

in connection with the *shophar*, and both instruments are to be blown as a warning to wicked Israel of the approaching visitation of God.

PART III.

CHAPTER IX.

INSTRUMENTS OF PERCUSSION.—TSELTSLIM, OR TZELTZELIM; METZILLOTH, OR MTSILTAYIM.

THESE words, which are found about a dozen times in the Old Testament, are, with only one exception, rendered "cymbals" in our version. This name fully describes the form of the instrument, for *cymbal* comes direct from the Greek κύμβαλον (*cymbalum*), which in turn comes from κύμβος (*cymbus*), a hollowed plate or basin.

Now, although there are in use among most nations a large number of varieties of this instrument, differing in *size*, yet there are only two having any broad distinction in *form*. Of these, the one was almost identical with our modern soup-plate (having a somewhat larger rim); the other had a hollow commencing at the very rim, and terminating in an upright handle, giving it the appearance of a hollow cone, surmounted by a handle. Both sorts were in use among the Assyrians. The comparatively flat cymbals were played by bringing the right and left hands, each of which held one plate, sharply together at right angles with the body. Of the conical-shaped cymbals, one was held stationary in the left hand, while the other was dashed upon it vertically with

the right hand. Fig. 85 shows an Assyrian in the act of striking this last-mentioned form of the instrument. Sculpture also shows people striking the flatter instruments in the manner above described. The ancient Egyptians also used cymbals made of copper, with a small admixture of silver. Most fortunately a pair of these was discovered in the tomb of a priestly musician named Ankhapê, close by his

Fig. 85.

mummied body. These are given in Fig. 86. The perforation in the top is, of course, for the purpose of passing a loop of cord through as a handle. A leather strap is used for this in modern instruments. These ancient specimens are about five inches in diameter, and are said to be almost identical, both in form and size, with those used in Egypt at the present time.

In Ps. cl. 5 two sorts are evidently pointed out: "Praise Him upon the loud cymbals; praise Him upon the high-

sounding cymbals." Bearing this in mind, it is very interesting to find that the Arabs have two distinct varieties, large and small; for the "loud cymbals" of the Psalmist would certainly be of a larger diameter than the "high-sounding" cymbals. In the Prayer-book version of this Psalm, the real distinction between these two species is

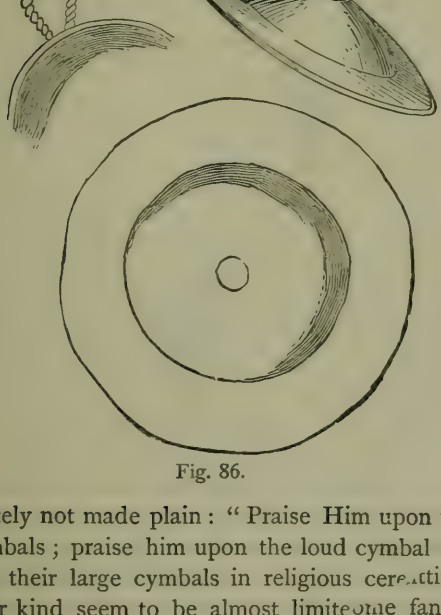


Fig. 86.

unfortunately not made plain: "Praise Him upon the well-tuned cymbals; praise him upon the loud cymbal is more Arabs use their large cymbals in religious cere..ting wire the smaller kind seem to be almost limite..me fanciful re-paniment of dancers. In India, instrum..oth instruments. are called *talan*. There is also a small..sed as of old, a *kintal*. The Bayaderes dance to the *tal*. a leather thong,

The Turks, as would be expected plates clash. In origin amongst the table-lands of central A..erally used thus:

of music chiefly founded on that of the ancient Persians. They have always excelled, not only in the use of instruments of percussion, but also in their construction. From the fact that the foot-guard of the Sultan were formerly called Janissaries, music chiefly consisting of a combination of the sounds of instruments of percussion has been called "janissary music." The efforts of Frederick II. to obtain genuine music of this sort for German use are well known. Turkish

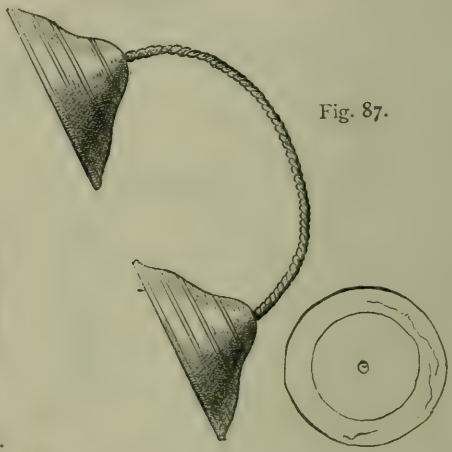


Fig. 87.

Fig. 88.

cymbals still hold a high value, and are manufactured in that country in very large quantities, for exportation westward.

forations, though perhaps less strictly musical instruments loop of cords, must be classified with them; and many for this in mind for the manufacture of one, are equally are about five inches the other. The Chinese and Burmese, identical, both in both cymbals and gongs, the latter being the present time, added on cords in a series of different

In Ps. cl. 5 to produce their national scale when struck in Him upon the l

Fig. 87 shows a specimen of Indian cymbals; Fig. 88, one from Burmah. The joining together of the two plates by means of a cord does not appear to have been at any time a common custom in Europe.

The Greeks and Romans, by whom cymbals seem to have been shaped strictly in accordance with what the name implies—hollow hemispheres of metal, used them in the rites connected with the worship of Bacchus, Juno, and Cybelé. But, as has happened in other cases, the name *cymbal* has been in the most extraordinary way applied to instruments of a totally different construction. The Italians, at one period, called a common tambourine by this name, and even went so far as to apply it to the *dulcimer!* We have in a previous article traced the growth of a dulcimer through various stages, till it reached the form of a harpsichord; the reader, therefore, will not be astonished to find, at a later date, "cymbal" used for harpsichord. But this is not all. As the pianoforte was the direct offspring of the harpsichord, the pianoforte part in a full score is to this day sometimes marked *cembalo*, or "the cymbal part." It seems to be a matter for much regret that musicians should feel bound, by habit or fashion, thus to perpetuate a title which is not only unmeaning, but absolutely incorrect. It is difficult to understand in what respect the dulcimer was thought to bear any resemblance to cymbals. Some say that because it was struck with hammers, it might with justice be called an instrument of percussion; but it is more probable that the peculiar clang caused by hitting wire strings with little wooden mallets, gave some fanciful resemblance between the "ringing" tone of both instruments. In modern military bands, cymbals are used as of old, a plate being held firmly in each hand by a leather thong, and by swinging the hands together the plates clash. In modern orchestras the instrument is generally used thus:

one plate is horizontally fixed (rather loosely) on to the top of an upright drum; with his left hand the player holds the other plate, and with his right hand a drumstick. Thus, not only can one performer play both instruments simultaneously, but the tone and clang of the cymbals are much intensified by being in close connection with the vibrating skin and frame of the drum.

Cymbals, in a somewhat unexpected manner, came to be associated with the tambour. For as they became reduced in size it was found possible to insert several pairs inside the *rim* of the tambour, so that their clatter should

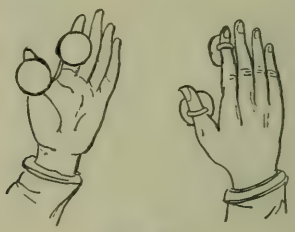


Fig. 89.

either join the rhythmical beating of the tambour, or be heard alone when the tambour is held by one hand, and made to swing rapidly from side to side, a diameter being its axis. These "petites cymbales" were occasionally fixed to the thumb and forefinger of both hands, which were then clapped together, as shown in Fig. 89. Hence they came to be called *castanets*, from their similarity to the old toy—hardly worthy of the name of a musical instrument, although it was used with dancing—which consisted of *chestnuts* attached to the fingers (as in Fig. 89), and beaten together; the words *chestnuts* and *castanets* both being derived from *castanea* (Lat.), and κάστανον (Greek), the name of the tree. But in process of time, pieces of ivory or mother-of-

pearl were substituted for chestnuts. Hence the bones which we see rattled between the fingers of supposed negroes are dignified with the name castanets, and can in some sense trace their pedigree to the ancient cymbals. Hence, too, we get an explanation of the old word *nakers* or *nackers*, which was applied to castanets by Chaucer, and used commonly at a later period. Evidently it alludes to the material of which they were made, *nacre* being the French, and *nacar* the Spanish for "mother-of-pearl." Very small cymbals have occasionally been used in the modern orchestra. Berlioz, who gave so much attention, and devoted so much talent, to the increasing of the resources of a band, used, in a symphony, a pair not bigger than the palm of the hand, and tuned them at an interval of a fifth apart. It should be stated that in playing cymbals, not only in Europe, but in Asia, it is not usual to strike them edge against edge, as the Assyrian appears to be doing with his conical cymbals in Fig. 85, but to make one plate only partially overlap the other. If the former method be adopted, the vibrations of the plates are very liable to destroy each other, owing to the extent of the contact of the two surfaces; if the latter, the plates have more "play" when in vibration.

In the Holy Scriptures the use of cymbals is solely confined to religious ceremonies—the bringing back the ark from Kirjath-jearim (1 Chron. xv. 16, 19, 28); at the dedication of Solomon's Temple (2 Chron. v. 13); at the restoration of worship by Hezekiah (2 Chron. xxix. 25); at the laying the foundation of the second Temple (Ezra iii. 10); and at the dedication of the wall of Jerusalem (Neh. xii. 27). This would lead us to suppose that cymbals were not commonly used as an accompaniment to dancing among the Jews. Certain Levites were set aside as cymbalists, as described in 1 Chron. xvi. 42, and elsewhere. They are

mentioned in Ezra iii. 10, as being used with trumpets (*khatsotsrah*) only, but in most other instances are described as being used with harps and other Hebrew instruments. There is deep meaning in the allusion of St. Paul to this instrument in 1 Cor. xiii. 1. Inasmuch as it gives out a shrill and clanging sound (*κύμβαλον ἀλαλάζον*), and is incapable of being tempered or tuned so as to form ever-varied chords with those musical instruments which surround it, it too well illustrates the hollowness and emptiness of character which, while making noble professions with the tongue, lacks that gift of charity which, if it truly glowed in us all, would soon attune all the discords of this world into such a sweet harmony as were worthy of heaven itself. It is a pity that *ἀλαλάζον* should in this fine passage have been translated "tinkling," a word now used to describe any trifling, petty jingle; it should have been "*clanging*" or "*clashing*" cymbal.

The one instance, before alluded to, in which the word *tseltslim* has been translated otherwise than by the word "cymbals," occurs in Zech. xiv. 20, where it is rendered by "bells:" "In that day shall there be upon the bells of the horses, HOLINESS UNTO THE LORD." The margin here has another reading—"upon the *bridles* of the horses;" but if the word be understood in a musical sense or not, it can in no way be considered as badly rendered by "bells." For the Eastern custom of having little plates of metal attached to the caparisons of horses so as to produce a jingling noise, is well known. And if these plates had a circular indentation, they would be little cymbals; and if the indentation should be made deeper, and the rim be gradually bent into a circular outline, a little bell is the result. This gradual change of metal plates into bells is interesting and important. The indentation of cymbals would be found to add to their vibrating power and sonority, and as this indentation

became exaggerated, nothing would be more probable than that they should eventually be formed into half-globes. This form, as has been before remarked, is actually to be found in Roman and Greek sculpture. Then again, in course of time, these half-globes or, as they might be truly called, these hemispherical *bells*, would be found to be shrill and noisy in tone. Then again would naturally follow the experiments, as made in Europe, of moulding the rim slightly *out-turned*, and thickening its metal. Here at last we have a real bell with the so-called *sound-bow*, or thick lip. But here it should be observed that Europe is the birth-place of modern bells; they seem not to have existed as musical instruments until the Middle Ages. Of the bells of the Bible, therefore, we have but little to say. They were mere accoutrements, not capable of being arranged so as to produce the consecutive sounds of a musical scale. The care bestowed upon their form and construction, particularly in Holland and Belgium, led to the casting of those rich and mellow-toned instruments whose sounds ever stir deep emotions in us, whether of joy or sorrow. England was not slow to adopt so appropriate and useful an addition to her many church towers, and learnt to make use of them in a way even now imperfectly understood on the Continent—namely, that of hanging them on the axis of a wheel, and ringing them by a complete swing. The most ancient bells yet discovered are found not to be castings, but to consist of a plate of metal, bent round, and rudely riveted where the edges met. Bells, then, are closely allied to cymbals, but when mentioned in ancient authors, are not to be looked upon as musical instruments. The Assyrians used them, as did the ancient Chinese, and not a few have been found in Irish bogs, or in the drift. If, then, the "bells on horses" were not little cymbals, they were not more than toy-bells, such as are to be often heard in our own country lanes,

when the miller's team is lazily led along under the autumn sun, warning any wagoner coming in an opposite direction to draw near the hedge and allow a free passage. *Phaghamon* is the name used in Exod. xxviii. 33, for such bells on the priests' garments: "And beneath upon the hem of it thou shalt make pomegranates of blue, and of purple, and of scarlet round about the hem thereof; and *bells of gold* between them round about: a golden bell and a pomegranate, a golden bell and a pomegranate, upon the hem of the robe round about. And it shall be upon Aaron to minister: and his sound shall be heard when he goeth in unto the holy place before the Lord, and when he cometh out, that he die not." In Exod. xxxix. 25, we read—"And they made bells . . . as the Lord commanded Moses." These are the only two passages in which *phaghamon* occurs.

CHAPTER X.

MANGHANGHIM, OR MENAANEIM; SHALISH; TOPH.

ONCE only is this word met with in Holy Scripture—in 2 Sam. vi. 5: "And David and all the house of Israel played

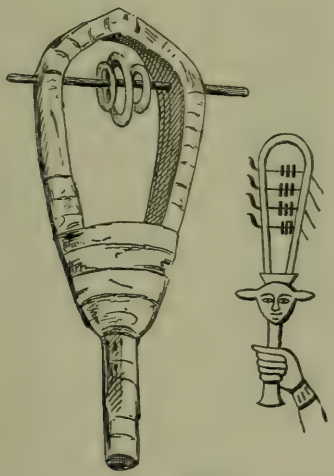


Fig. 90.

before the Lord on all manner of instruments made of fir-wood, even on harps, and on psalteries, and on timbrels, and on cornets, and on *manghanghim*." Although translated here "cymbals," the root of the word in Hebrew points to the old Latin root *nuo*, whence *nuto*, "to sway to and fro,

to *vibrate*." Now, the word *sistrum* (σεῖστρον) comes from a Greek verb σείω, having an almost identical meaning. There is, therefore, a very good reason for believing that the word *manghanghim* refers to an instrument which vibrated when shaken or rattled. One of the two classes of sistrums exactly answers to this description. Through an upright frame of metal, supported on a handle, several metal rods are passed and fixed in their position, generally by bending

Fig. 91.

the extremities. On them are placed loose metallic rings. Fig. 90 shows two examples of this instrument which are preserved in the Berlin Museum. The position of the rings in this illustration may perhaps lead to the supposition that they are fixed by the centre; this is not the case. They, of course, should lie loosely on the bars. Fig. 91 shows Egyptian priestesses in the act of playing on this kind of sistrum at a religious ceremony. The second kind of sistrum, above mentioned, had metallic bars, *without rings*. Hence, it has been thought by some that the *bars* were of

graduated length, and gave a series of musical sounds when struck by some hard substance held in the other hand of the player. Fig. 92 represents two of these. Their Egyptian name is doubtful, but the word *kem-kem* is thought to apply to them, although the Coptic version translates the "sounding brass" of 1 Cor. xiii. 1 by *kem-kem*. Others think it applies to the tambour. Rosellini has deciphered

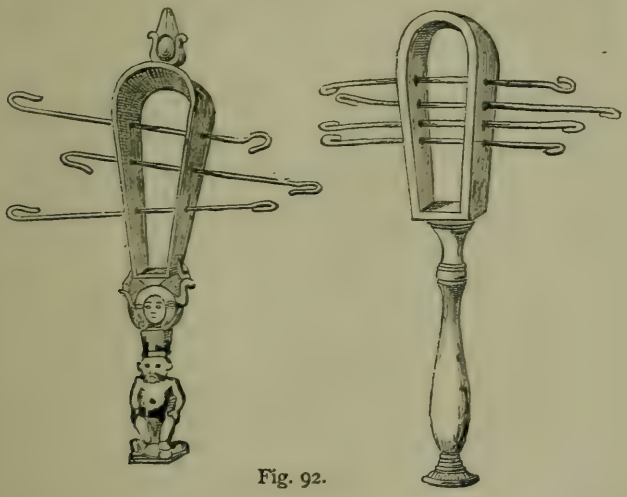


Fig. 92.

the word *sescesch*, and interprets it as "sistrum." If the rods were really in proportional lengths, and were struck, the tones of a sistrum of this class would be more determinate than those of cymbals. The Romans used it, or at least were aware of its existence and uses; fairly true representations of it being found on some of their medals. This may have been the *æreum crepitaculum* of their poets. As the sistrum often, among the Egyptians, accompanied rites of a very wanton and lascivious character, there is something

intensely sarcastic in Virgil's description of Cleopatra leading her forces to battle to the sound of the sistrum—

> "Regina in mediis patrio vocat agmina sistro."
> (Virgil, *Æneid*, viii. 696.)

The close connection between musical instruments of apparently very divergent species has been often before remarked; it is not surprising, therefore, to find a link between cymbals and the sistrum. Fig. 93 shows two such

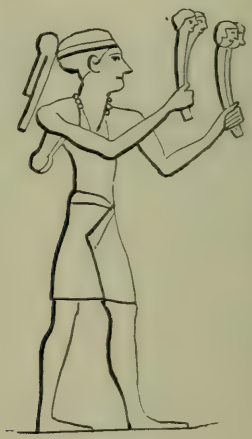


Fig. 93.

ornamental bars of metal held, one in each hand of the performer, which, when struck together, produce a loud clanging sound to mark the rhythm of a dancer. The fact that they are clashed together gives them a relation to cymbals, while their form—that of vibrating rods—renders it difficult to place them otherwise than under the head "sistrum."

The word *shalish* occurs only in 1 Sam. xviii. 6. It has

been variously described as a triangle, a sistrum, and by some—a fiddle! The root implies the numerical value of three. "And it came to pass as they came, when David was returned from the slaughter of the Philistine, that the women came out of all cities of Israel, singing and dancing, to meet King Saul, with tabrets, with joy, and with *shalishim*" (margin, "three-stringed instruments"). Whatever may be the antiquity of the viol family, it is difficult to believe that an instrument, which must have been in very common use—as the people flocked together who could play it, "from all cities of Israel"—should be only incidentally mentioned once in the whole course of Jewish chronicle. The notion that all the women of Israel were experts on a three-stringed fiddle is certainly novel, but, to say the least, very absurd. A triangle it might have been, but it is more probable that it was a sistrum, either with three rings on each bar, as in Fig. 90, or with three vibrating bars, as in Fig. 92.

Fortunately there is but little doubt as to the nature of the *toph*. It was a tambour, timbrel, or hand-drum. All nations seem to have possessed drums of various kinds, but always of a comparatively small size. It remained for modern Europeans to produce the gigantic specimens which are to be found in our orchestras. Few, who have been present, can forget the huge upright drum, far exceeding the height of its upstanding player, that adds its deep rolling bass note to the mass of sounds which are heard at the Handel Festivals in the Crystal Palace. Such drums were never dreamt of by the ancients. The necessity for having portable instruments would have excluded them from use, even if their presence had been thought desirable. Modern tambours, or tambourines, as we more usually term them, are invariably *round* in shape; those of the ancients, especially of the Egyptians, were sometimes *oblong* or *square*. Fig. 94 exhibits both kinds in use. They were one of the chief

ingredients of their funeral lamentations, which seem to us to have been strangely prolonged. It is said that such ceremonies, when a prince died, lasted as many as seventy days. They then sang, or uttered their mournful cries, to a tambour accompaniment. But the Egyptians also had drums of two other kinds. One consisted of a wood or copper cylinder covered at both ends with parchment, which was beaten at both ends with the hands, just as the tom-tom of India is played. The Egyptian "long-drum," as it may

Fig. 94.

be called, was, both as to size and shape, very similar to this tom-tom, which is not unfrequently to be seen in the hand of some poor wanderer from our distant empire, who is begging about the streets of London. Fig. 95 shows the manner in which it was carried and beaten. The other instrument of this class is peculiarly interesting, as being evidently the prototype of our modern kettle-drum. It was called *darabooka*, and was formed by stretching parchment over the open end of a basin of metal or earthenware. When, as was the case in ancient times, this kind of drum was small and easily carried, the termination of the hollow

bowl by a handle was ingenious and useful. But as their size increased, the handle had to give place to three feet, and the metal bowl could be rounded—a form greatly to the

Fig. 95.

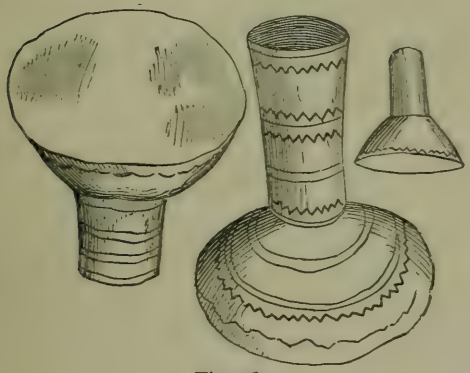


Fig. 96.

advantage of free vibration. Our kettledrum is therefore little else than a very large *darabooka*, standing on a tripod, instead of terminating with a handle. The *darabooka* is shown in Fig. 96.

The Assyrians appear to have used the tambour, and

also a drum, suspended by a cord round the neck (see Figs. 97 and 98). But the instrument they thus carried seems not to have been beaten, like the Egyptian long-drum and the Indian tom-tom, at both ends, but only at its upper surface.

Two questions arise with regard to ancient drums and tambours. Was the parchment or head of the drum rigidly fixed, or was it capable of being tuned? The reader is no

Fig. 97.

Fig. 98.

doubt well aware that to the edges of the head of a modern drum is attached, in the case of a side-drum, a series of cords, and in the kettledrum a metal ring, by means of which the parchment can be tightened or loosened, and consequently a power of regulating the pitch is obtained. Probably the head was fixed, and the ancient drums and tambours could not be tuned. The lines which cross the long-drum of the Egyptians in Fig. 95 look very much like the cords which cross the cylinders of our side-drums, but these cross-bars are evidently only a rude attempt at ornamentation. The second question is, had the ancient

tambours little bells, plates of metal, or castanets inserted in the rim, as we have in our tambourines? Probably they had. Fig. 99 shows an Arabian tambour called *bendyr*. There are holes in the rim of this which unmistakably suggest the probable insertion of some sort of pulsatile contrivance or other. Moreover, it is known that such appendages were not strange to the Greeks. The *bendyr* also contains five strings stretched across the inner surface of the head, as seen in the illustration, for the purpose of reinforcing its tone. Such a construction seems to have

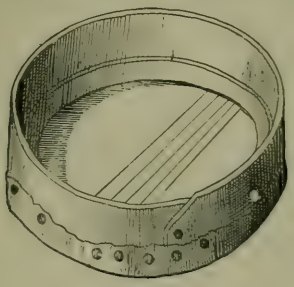


Fig. 99.

been introduced in comparatively late times. Stretched strings were formerly used for a like purpose in instruments of several other kinds, notably in the stringed instrument called viola d'amore, in which metal strings were stretched under those of catgut, passing under the finger-board and through the middle of the bridge, which was pierced to receive them. The Arabs have three varieties of tambour, besides that called *bendyr*. One of them, the *mazhar*, smaller than the *bendyr*, has no reverberating strings, and has metal rings instead of castanets. Another, the *târ*, has, like the *mazhar*, no stretched strings, but has four copper castanets. The fourth kind has only two castanets. Goat-skins generally form the head of these Arabian tambours,

which are chiefly played by women, as was the case among the ancient Egyptians. The Arabians have drums, not unlike kettledrums, and they may be seen playing them on horse-back or camel-back, just as the kettledrums are carried and played by the bands of our cavalry regiments. Fig. 100 shows a very beautiful specimen of an old tambour,

Fig. 100.

exhibited in the Kensington Museum, which has not only castanets in the rim, but bells suspended in the interior.

It is impossible to say whether the Hebrews used the drum as well as the tambour. Most probably the latter only was known to them. Its antiquity is proved by the fact that mention is made of it in conjunction with the *kinnor*, in the passage once before quoted (Gen. xxxi. 27), where Laban rebukes Jacob for having left him stealthily, whereas

an honourable departure would have been accompanied with songs, *toph*, and *kinnor*.

It was a *toph* which Miriam took in her hand when she led the song and dance on that wondrous day when Israel saw the "great work" which God had done, and thankfulness burst forth from side to side as they answered one another—"Sing ye to the Lord, for He hath triumphed gloriously" (Exod. xv. 1). Very different were the feelings which filled the breast of Jephthah when his only child came forth with *toph* in hand to welcome his victorious return from unequal fight with Ammon.

Among the instruments which the company of prophets bare, who met the future King Saul, was a *toph* (1 Sam. x. 5), and the same instrument was ere long to be a source of jealousy and chagrin to him when the women of Israel praised the youthful hero David on his return from slaying the giant; and it was part of the music which graced the return of the ark from Kirjath-jearim. That the use of the timbrel was not limited to religious ceremonies, is plain from the allusion in Isa. v. 12. It seems not to have been carried in warfare. On the contrary, in the following passage from Isaiah (xxx. 32) its mention is apparently intended to show the cheerful peace which should everywhere follow on the smiting of the Assyrian —"And in every place where the grounded staff shall pass, which the Lord shall lay upon him, it shall be with *tabrets* and harps." The tabret has now been excluded from sacred buildings, having given place to the more solemn and imposing drum.

It may perhaps be said that in speaking of the probable nature of the *kinnor* and *nebel*, too much reliance has been placed on the argument that people have a tendency to use light portable instruments when travelling, and larger instruments in religious and civil ceremonies.

If, however, we consider the habits of the present day in this respect, we shall find more support of the argument than might at first be supposed. For example, street-singers, who travel from place to place over long distances, have more or less adopted the portable *banjo* as an accompaniment to the voice, leaving the full-sized guitar and the large harp either to the concert-room or to street-musicians who remain in large cities. Then, again, although the two once well-defined classes of *portative* and *positive* organs have merged or died out, there still remains the *positive* organ in our churches and halls; and the *portative* barrel-organ whose existence can be verified by the sad experience of all lovers of quiet.

As regards drums, we certainly possess the light *tambourine*, and the large *kettle-drums* of concert use. The portable violin, called *kit* in England, has nearly become obsolete, but its French name *pochette* fully points out the fact that its popularity was owing to its convenience as a *pocket-fiddle*. The same remark may be applied to the pianoforte, for although large instruments mechanically played are now wheeled about our great cities, there was formerly a marked distinction between the portative pianoforte played by gipsy women and the heavy instrument placed in drawing-rooms.

It would seem justifiable, therefore, to assume that nomadic tribes would use small, simple types of instruments, while the inhabitants of great cities would also use instruments of more elaborate construction and of greater capabilities in their worship or court-ceremonies.

PART IV.

CHAPTER XI.

VOCAL MUSIC OF THE HEBREWS.

THE absence of monumental records of Hebrew music, some of which, however, may yet be found by the zealous explorers now at work in Palestine, renders the subject of the vocal music of the Jews no less involved in difficulties and mystery than that of their musical instruments. And in offering a few remarks upon it, the course already pursued seems to be the only one open to us—namely, to attempt to give some general idea of what ancient vocal music was, and leave it to the reader to judge how far the Hebrews caught the artistic spirit of their age, or were led by an unusual share of musical ability to excel their neighbours or contemporaries in the practice of this art. If a set of flutes could be found, in good preservation, in each of the centres of ancient civilisation, an approximation might be made to the *scales* commonly in use; but, alas! when the treasures of European museums have been ransacked, and some of the envied specimens shown, it is found that they are too old and crumbling to bear handling, or, if they may be freely handled, resolutely decline to emit a sound of any kind. So their secrets remain for ever locked up. But, as has

been hinted in a previous article, the method of blowing into a flute, or of closing more or less the apertures, has all to do with the reproduction of its scale; so that even if an ancient flute were actually placed in the hands of one of our most expert players, he could produce notes of many different pitches from each position of the hand, and could probably give more valuable information by saying what sounds the instrument was *not* capable of producing than by attempting to catalogue its capabilities. From ancient instruments of the harp or guitar class which have survived still less information can be gleaned. It is hardly necessary to say that, at the most, only fragments of the strings remain attached to their frame; nor would an intact set tell any tale, as stringed instruments are not in the habit of remaining in tune for several thousands of years.

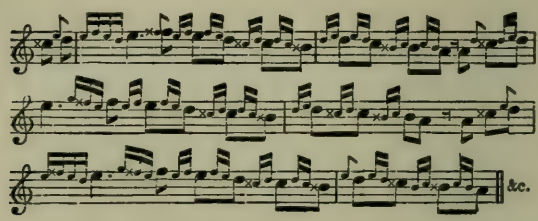
Of course *written* music, or the use of signs to represent sounds, must have been, in point of time, far posterior to the use of both vocal and instrumental music. If music had never had a definite scientific growth, it could not have failed to creep into use from a common observance of the different effects produced by altering the pitch of the voice, especially when reading poetry. Whilst reciting the great deeds of ancestors, or traditional hymns on the greatness of the unseen Maker of the universe, the modulation of the voice must have been a most important element of the poet's or minstrel's training. Bearing this fact in mind, it is easy to imagine how, first of all, a solemn monotone, next, occasional changes of pitch, and, lastly, ornaments and graces came to be part of the reciter's art, or, in other words, the poet's *music*. The Arabs, to this day, recite the Koran to a sort of irregular chant or *cantillation*. Among many nations musical instruments were used to support the voice of the chanter. That the prophets of Israel sometimes uttered their inspirations in such a manner is suggested in Sam. x. 5.

It is a well-known fact that ancient Greek poets rhapsodised in a sing-song way often to the accompaniment of a lyre or flute.[1] The traditions of such accompaniment were probably handed down to the Italian *improvisatori*, and the troubadours, whose rhymes were often sung to almost chant-like melodies. How to write these modulations of the voice was quite another question. And here we find that ancient musical notation seems to have naturally grown into two branches, the difference between them depending upon the taste or aptitude of different nations for incorporating into their music sounds of fixed pitch, or ornaments and graces which could be used in any pitch according to the reciter's wish or requirements. The fact suggests itself at once to us that flutes or wind instruments would have a tendency to fix definite pitch, while harps and guitars, owing to the ease with which their *accordatura* or system of tuning can be altered, would be available for a constantly changing normal pitch, or *diapason*, as we somewhat improperly term it.

Not forgetting this, it is most interesting to find that the tendency of Europeans, from the earliest time, has been in *notation* to graduate sounds from a known generator, and so to fix pitch; while, on the other hand, the taste for ornament has led Asiatic nations to devise means rather for expressing these ornaments than for securing their immutability in a scale series.

To this day an Asiatic song generally consists of a slight melodic framework, almost hidden beneath a load of extraneous graces. The following fragment of an Arabian tune would puzzle the most devoted lover of *fioritura*. The notes marked + are not doubly sharpened, as would be implied by our modern notation, but are small intervals

[1] See Donaldson's *Theatre of the Greeks*, notes to p. xiv.

lying between the notes of our scale which we have no means of expressing.

It must not for one moment be supposed that *all* Asiatic melodies abound in graces, or that all ancient European tunes lack them; quite the contrary. All that is meant is that the *tendency* of these two branches of music is in the one case to include them, and in the other to exclude them.

Hence we find that the oldest form of known European notation has for its object the giving of a sign for a fixed note; the oldest, or presumably the oldest, of Eastern systems the giving of a sign for the *movement* of the voice for a certain interval, or this same movement with the addition of an embellishment. The former is exemplified in the Greek notation, as given in ancient treatises; the latter in the so-called *accents* of the Hebrews, of which more must be said soon. Hence, ancient notations are of two kinds: those founded on the use of the letters of the alphabet; and those in which conventional signs described conventional ornaments. These two, however, though distinct in principle, often overlap each other. The ancient notation of the Eastern Church, which was tabulated by St. John of Damascus, who was to the Eastern Church, musically, what Gregory was to the Western, consisted of signs which must be considered as indications of the *form* of the movement of the musical-director's hand. Much

can be said in favour of this theory, as a system of *chironomy* has been associated with music from the earliest times.[1] A few are here given :—

. . . . . Ison.

. . . . . Oligon.

. . . . . Oxeia.

. . . . . Pentasthe.

. . . . . Kouphisma.

. . . . . Pelasthon.

Ison is the key-note or *tonic*, a *movable do*. The other signs represent the vocalisation of various intervals above; namely, the second, third, fourth, fifth, and sixth.

If such distinctive signs as these were used only for the expression of definite intervals, the translation of such music into modern notes would be comparatively easy; but, unfortunately, the *Hebrew* accents were intended in all probability to describe often not only an interval, but a succession of notes and an embellishment. The reading of the sacred scriptures was, says De Sola, "always accompanied by the observance of certain signs or accents, intended to determine the sense, and as musical notes; which, although they have a distinct form or figure, do not nevertheless present a determinate sound like our present musical notes, but their sound is dependent on oral instruction, since the same

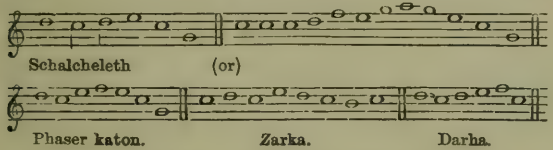
[1] See *Anthologia Græca Carminum Christianorum*, Christ et Paranikas.

sounds vary in sound in the various scriptural books, and are modulated according to the tenor and contents of them." De Sola then goes on to quote R. Simeon bar Zemach Duran, to the effect that of the accents, which are sorts of *melodies*, three have remained, one appropriated to the reading of the Pentateuch; the second for that of the Prophets (the portion used on sabbaths and festivals differing from the rest); the third for the reading of the Psalms, the Proverbs, and Book of Job.[1] Some of these signs are placed over words, some under; some over the last letter of a word, last but one, or in other positions, the musical value varying accordingly. The following is a list of them as given by Fétis :—

֒	Pashta.	׀	Kadma.
֥	Munakh.	֘	Thalisha gh'dola.
֗	Zarka.	֤	Karné pharah.
ֱ	Ségol.	֢	Phazer, or Phazer-katon.
֪	Shalsheleth.	׳	Zakeph-katon.
֡	Thalsha.	֟	Zakeph ghadol.
֭	Darha.	ֽ	Rabigha.
֬	Thebir.	֢	Athnakh.
֫	Azlà.	׃	Soph pasok.
֮	Ghéresh.	֥	Légormi.
ׇ	Sh'negh'rishainy.	֜	Jérach Ben yomo.
֯	M'r'ca.	ֿ	Mahphac.
֮	Yethib.		

[1] The Sephardim have also melodies for the Books of Esther, Ruth, Song of Solomon, and Lamentations of Jeremiah. Not only the

The form of several of the above will be found to differ from that given to them in other works, because copied from manuscripts.[1] They have probably varied slightly from time to time. Old Kircher (in his *Musurgia*) exhibits their position above or below a word by using a short line as an imaginary word. Some of the vowel-accents of Hebrew become tonal-accents if placed in a particular place with regard to the letters forming the word. This adds to the difficulties of this already difficult subject. The following are some of Kircher's explanations of the accents:—



A careful examination of Kircher's complete list will, however, raise some doubts as to his trustworthiness. Exactly similar musical phrases are in more than one instance given for two different accents, and the explanation of some of them resolves itself into the repetition of a single note.

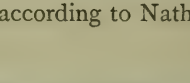
The questions which arise as to the meaning of these signs would pass from the consideration of the musician to that of the scholar, were it not for the fact that complete musical transcriptions of them, such as those above, have been given by several authors. On comparing these, however, their difference is found to be so great, that the conclusion is unwillingly forced upon us that practically the musical rendering of the accents varies in character according

canonical books of Scripture, but the Mishna and probably the Jemarah, were recited to cantillation; an edition of the former as late as 1553 was printed with musical accents. (De Sola, p. 12.)

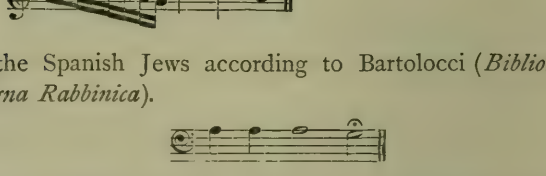
[1] See Appendix IV.

to the nature of music in use in whatever country the Jews have settled down. Thus Eastern Jews give them in music which bears a close likeness to that of modern Asiatics. Their interpretation in Spain is palpably Moorish; in Germany different to both of these, and so on. The few following examples will point out the discrepancies which exist in their explanation.

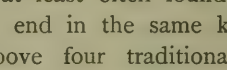
Schalsheleth, which has already been quoted from Kircher, is traditionally rendered in the Egyptian synagogues



by the English Jews, according to Nathan (*Essay on History of Music*),



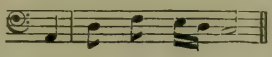
by the Spanish Jews according to Bartolocci (*Bibliotheca Magna Rabbinica*).



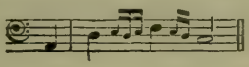
Any translations more divergent in character than these can scarcely be conceived. In comparing traditional tunes, it is generally, or at least often found that the different versions begin and end in the same key-tonality; but in comparing the above four traditional explanations of *schalsheleth* not even this similarity of construction is observable.

It should be remarked that the musical renderings of the accents, as given by Egyptian and Syrian Jews, bear a

striking resemblance to each other. For instance, *thalsha* is thus sung by the Egyptian Jews (according to Fétis):—



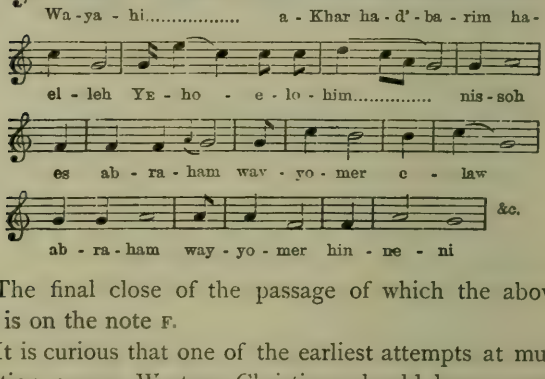
The Syrian use is practically identical:—



It has also been found that two sects of Jews in Egypt, though opposed to each other in ceremonial and doctrine, have a very similar system of singing the accents.

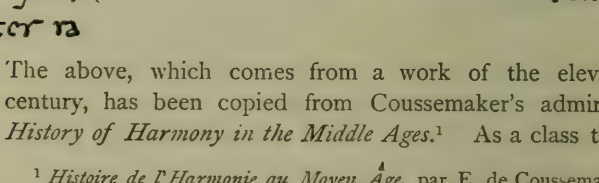
As the primary use of accents is to point out the usual elevation of the voice, as shown by the Greek accents, which were a comparatively late addition to their written language, for the benefit of foreign students; so also it is quite possible that these complicated Hebrew accents gradually grew out of what were originally simple signs directing a slight elevation of the voice when reading or perhaps monotoning. That *monotone*, when used from century to century in the mouth of devout readers, will grow into a *cantillation*, or rude sort of chant, can be proved by the history of our early Church plain-song. Why should not the Hebrews have passed in their days through the same phase of musical development which other nations have done? If there is any truth in this thought, it would be futile to attempt to stereotype, as it were, the actual meanings of their tonal accents. In the most primitive times, what would now strike us as a simple cadence of the voice, must have added dignity to the solemn recitation of the revered words of the treasured rolls. As art grew around, these improvised ornaments would naturally become more complicated, until, as we actually find to be the case, they would rival the most ambitious modern *roulade*. In

the authors already quoted, the reader who is specially interested in this subject will find much information. A quotation (from Naumbourg) of a fragment of Genesis xxii. will show the result of strictly applying the meaning of the accents attached to the text of the Pentateuch, as interpreted or taken down from tradition by him.



The final close of the passage of which the above is part is on the note F.

It is curious that one of the earliest attempts at musical notation among Western Christians should have consisted of signs, such as the following, placed over words :—



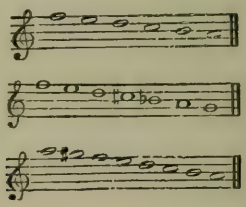
The above, which comes from a work of the eleventh century, has been copied from Coussemaker's admirable *History of Harmony in the Middle Ages.*[1] As a class these

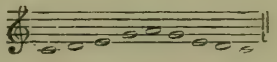
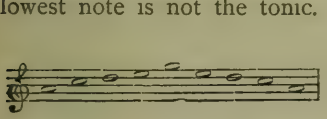
[1] *Histoire de l'Harmonie au Moyen Âge,* par E. de Coussemaker ; Paris, 1852.

signs were called *neumes*, but sometimes also *accents*. They laboured under precisely the same disadvantages as their prototypes among the Hebrews, namely, the probability of a diversity of translation. Modern musicians do not perhaps know how grateful they ought to be to those who first used *lines*, or a *staff* of lines, to represent the exact interval between ascending and descending sounds. Attempts were probably made to introduce them about the same date ascribed to the above signs, after which their use rapidly spread. Until such a system came into existence music was chained up within the narrowest limits. By enabling composers to express in a simple form the relation or position of two or more parts placed over one another, it doubtless paved the way for that wonderful expansion of harmony, or *polyphony*, into a separate branch of the art, which has achieved such wonders in our own day. For although early composers of part-music, it is presumed in accordance with fashion, rarely published scores of their works, it cannot be doubted that in the quietude of their study they took the simple course of sketching a score before copying out separate parts. This growth of harmony must be looked upon as the distinctive feature of modern music. By "harmony" must of course be understood that independence of movement in the component parts of music, which make some of our finest music, practically, into a number of beautiful melodies heard simultaneously. This, it is almost a certainty, was unknown to all ancient nations. In the more limited sense of the word—"a combination of consonant, or properly regulated dissonant, sounds," or, in short, *chords*—the ancients, no doubt, may be said to have had *harmony*, that is to say, certain notes of their scales were very probably accompanied by chords, according to certain rules. But yet they had only one melody at a time, whereas we can and do listen to many

conjointly. And who can describe the pleasure which accrues to a trained musician when he grasps in his mind many threads of delicious melody, and traces the composer's genius in interlacing them? now drawing them close together, now spreading them out until the ear is taxed to gather in high and deep tones; and still further, while thus interweaving the several threads, is spreading to the ear at each combination, whether the parts move concordantly or are discordantly jostling one another, chords which are in themselves complete and beautiful sets of sweet sounds. Such harmony—to be found in the works of a Bach, Handel, Mozart, Beethoven, and Mendelssohn—did not exist for the Hebrews, Egyptians, or even Greeks. It places modern music on a pinnacle of glory. Chords, and a regulated use of chords, the Hebrews very probably used; but they did not possess the full gift which we term *harmony*.

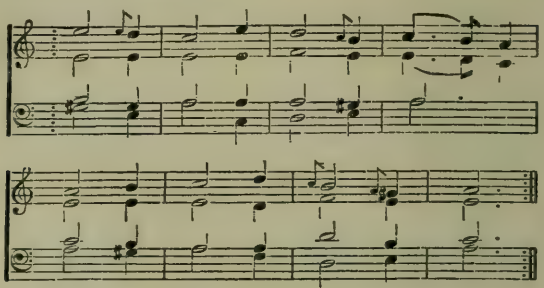
As regards the form of early Hebrew melodies, it is probable that they are reflected in modern Asiatic music, and would, if we could hear them now, strike us as being in a sort of minor mode. It is possible that they might at one time have had an enharmonic scale (that is, a scale having intervals less than a semitone), and that this was in time superseded by a simpler form; but there are some grounds for supposing that they used some form of scale consisting of tones and semitones. From some of the music now sung by Egyptian Jews such scales as the following might be formed :—



In all attempts to construct scales from traditional songs, the great difficulty which presents itself is to discover what was the key-note or starting-point of the scale. If ancient melodies began or ended on the key-note or tonic, the knot could be at once unravelled; but this no one can venture to assume. The key-note of the Greeks was at first, unquestionably, in the middle of their scale. The reader must bear in mind that the question is not of what sounds any tune is made up, but in what order did these sounds occur to form a scale. Engel has shown his appreciation of this difficulty when discussing the *pentatonic* scale, to which he justly attributes great antiquity. It consists of what we should call the first, second, fourth, fifth, and sixth degrees of our modern scale, *e.g.*,  In some of the oldest known tunes made up of these notes, the lowest note is not the tonic. But if it be written thus,  it presents a very different appearance to the eye, and produces a very different effect on the ear. Yet, without doubt, any musical instrument tuned to a series of notes corresponding to the above might with justice be described as possessing a pentatonic scale. Some interesting remarks on the almost universal use of this pentatonic, or *pentaphonic*, scale will be found in Gevaert.[1] The minor tonality of Eastern melodies has before been alluded to. The following beautiful tune is Syrian. Simple harmonies have

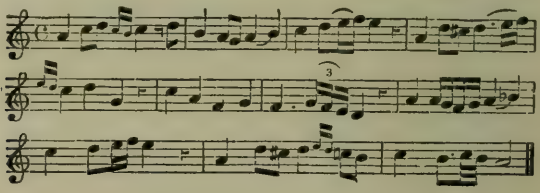
[1] *Histoire et Théorie de la Musique de l'Antiquité;* Gand, 1875.

been added to it for the assistance of those who cannot harmonise it for themselves.



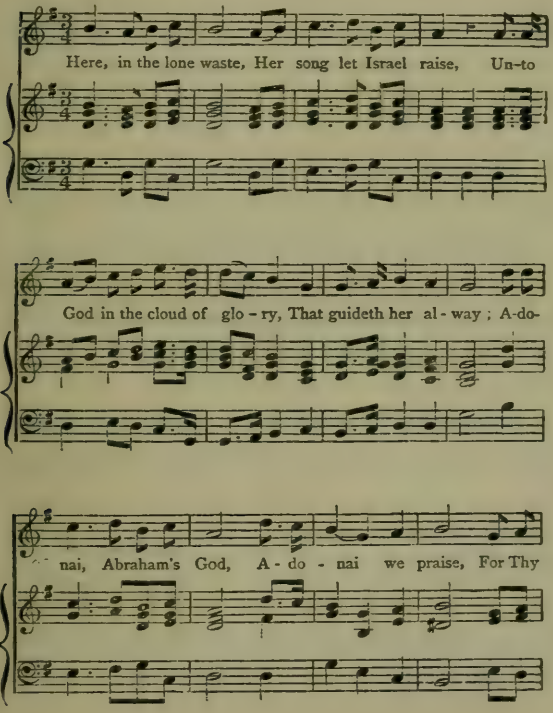
The rhythm of this tune is so symmetrical that it might well be used as a hymn tune. In this respect it is perhaps different to many of its class. It will be noticed that its compass is a minor sixth, a compass within which old melodies are often contained, and which had been remarked by Villoteau as a feature in some of the Egyptian-Jewish music.

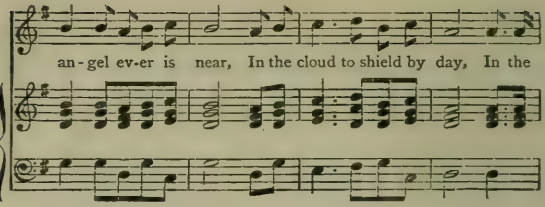
The following melody was sent to M. Fétis, whose account of the vocal music of the Jews is perhaps the most interesting and reliable portion of his *Histoire Généralé de la Musique* (and to whom we are indebted for much of the music that has been given), by a resident of Egypt, as being traditional in the synagogue of Alexandria :—

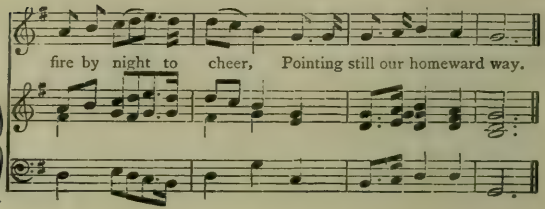


The quaint and wild beauty of this tune will be appre-

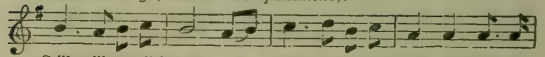
ciated by the most unmusical reader. As an example of ancient Hebrew music, the tune which follows is given with a simple pianoforte accompaniment. It is called the "Song of Moses." De Sola says that a very ancient Spanish work affirms that it was the veritable melody sung by Miriam and her companions. Such a legend goes to prove that the melody probably belongs to a period anterior to the regular settlement of the Jews in Spain.

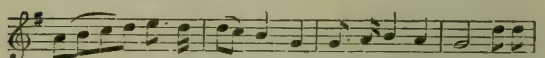

Here, in the lone waste, Her song let Israel raise, Un-to
God in the cloud of glo - ry, That guideth her al - way ; A-do-
nai, Abraham's God, A - do - nai we praise, For Thy

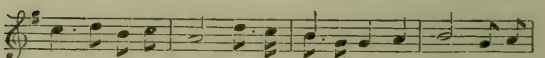


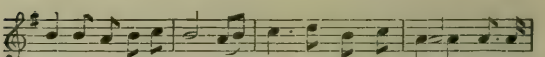
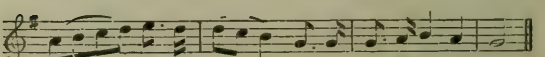


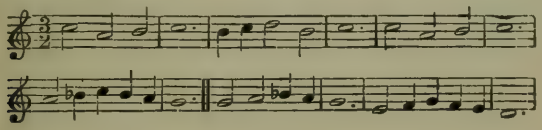
VERSES 2 & 3 (*to same accompaniment*).

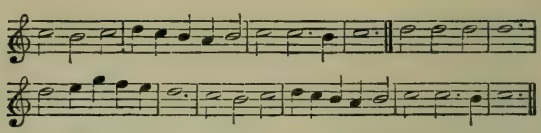

2. Still, still wand'ring on, A trusting, timorous band, Fed with the
3. Sing high to the Lord The strains that Moses sang, When Miriam






none, O Lord, like to Thee, That wond'rous works hast wrought, Thro' the
arm mighty is, O Lord, Who triumphs glo- rious - ly, Scatt'ring our

In cantillation, which has above been described as a rude kind of chant, all the defects which are attached to irregularity and uncertainty showed themselves. Its character varied from time to time and in different places. But the very irregularity of this sort of chant renders it singularly appropriate for use to poems of a complicated or constantly changing rhythm, such as the Psalms. The rigidity of the form of the single or double chants to which we sing the beautiful Prayer-book translation of the Psalms is really their great fault, for although it gives a congregation of hearers every opportunity of quickly learning its unvarying tune, yet it must remain exactly of the same length and cadence, whether the verses be short or long, or whether the parallelisms of the poetry run in half verses, whole verses, or in sets of two verses. The unequal length of the meditations and endings of Gregorian tones has been urged in their behalf, as giving greater elasticity to the musical recitation of the Psalms. It must be allowed that this is true, but, on the other hand, this advantage is often thrown away by using one particular tone for a whole psalm, or, what is still worse, for several consecutive psalms at one service. We moderns, it must be confessed, stand greatly in need of some easy form of cantillation for psalm-singing, which shall, owing to its elastic character, be capable of being moulded to suit irregularly-constructed poems. The following chant is used to the 18th Psalm by the Spanish Jews. As will be seen, it has lost much of the rhythmical irregularity of cantillation, but yet is not tied up in a strait-jacket like a modern chant.





As to the manner in which the Psalms of David were rendered at the time of the first Temple, little can be said with certainty, unless it be that the instruments we have enumerated were used in whole or in portions, and that *dancing* of a solemn character formed an accompaniment to the rhythm of the music. Of the psalm-singing of the second Temple, clearly-defined traditions are to be found in the Talmud,[1] according to which, on a sign being given on cymbals, twelve Levites, standing upon the broad step of the stairway leading from the place of the congregation to the outer court of the priests, playing upon nine lyres, two harps, and one cymbal, began the singing of the Psalm, while the officiating priests poured out the wine offering. Younger Levites played other instruments, but did not sing; while the Levitical boys strengthened the treble part by singing and not playing. The pauses of the Psalm, or its divisions, were indicated by blasts of trumpets by priests at the right and left of the cymbalists.[2]

It will not be difficult to form an opinion of the general effect of Temple music on solemn occasions if we know the grand musical results of harps, trumpets, cymbals, and other simple instruments, when used in large numbers simultaneously or in alternating masses. It is easy to describe it in an offhand way as *barbarous*. Barbarous in one sense, no doubt, it was; so, too, was the frequent gash of the uplift sacrificial knife in the throat of helpless victims on reeking altars. Yet the great Jehovah himself condescended

[1] Lange. Commentary, Psalms.

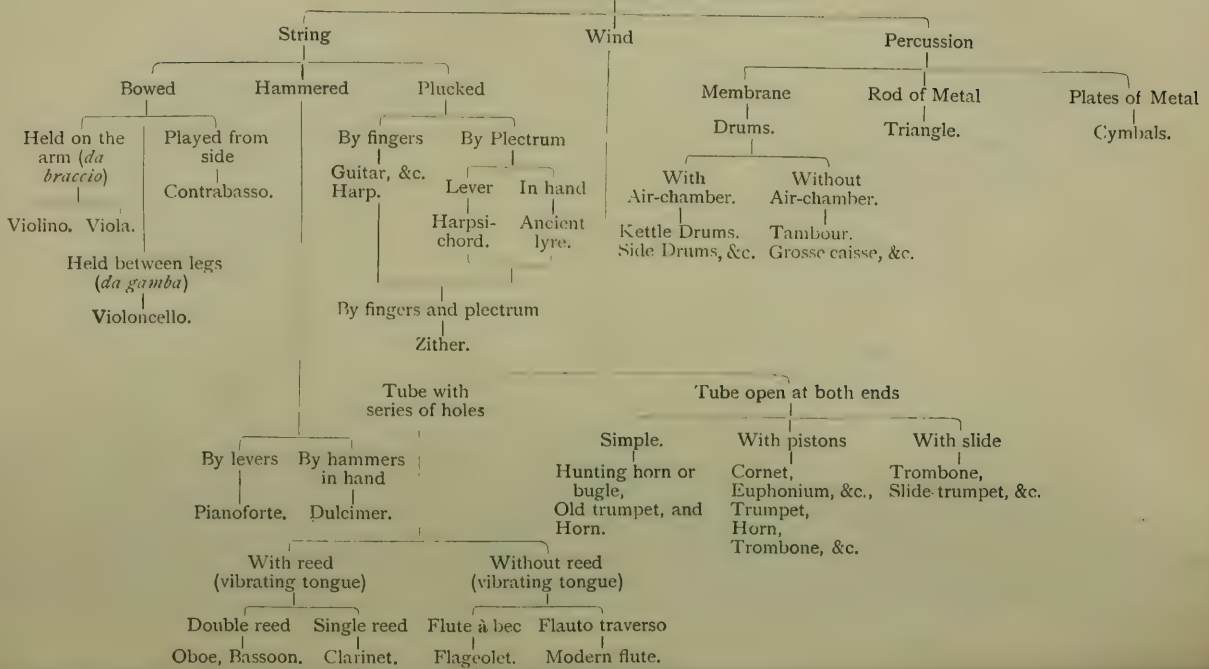
[2] See page 68, under "Selah."

to consecrate by His visible presence ceremonials of such sort, and why may we not believe that the sacred fire touched the singers' lips and urged on the cunning fingers of harpists, when songs of praise, mixing with the wreathing smoke of incense, found their way to His throne, the outpourings of true reverence and holy joy? If one of us could now be transported into the midst of such a scene, an overpowering sense of awe and sublimity would be inevitable. But how much more must the devout Israelites themselves have been affected, who felt that their little band —a mere handful in the midst of mighty heathen nations— was, as it were, the very casket permitted to hold the revelation of God to man, of Creator to His creatures; and could sing in Psalmist's words which now stir the heart and draw forth the song, how from time to time His mighty hand had strengthened and His loving arm had fenced them? Let us try and enter into their inmost feelings, when the softest music of their harps wafted the story of His kindness and guidance from side to side of their noble Temple, or a burst of trumpet-sound heralded the recital of His crushing defeat of their enemies, soon again to give place to the chorus leaping from every heart, "Give thanks unto the Lord, His mercy endureth for ever."

When next, in time to come, such sounds wake the desolation of the now ruined and half-buried Holy City, the ancient music will have passed for ever away with the ancient hardness of heart and disbelief, and nothing in Art shall be too new for those who will then understand how old and new dispensations have been bound together in one by Him who has brought His erring children once more into His fold, from the east and from the west. What a new, what an unfathomable depth of meaning will *then* be found in their oft-repeated song, "His mercy endureth for ever!"

APPENDIX I.

Classification of Musical Instruments.



ORGAN (contains *series* of reed and flue pipes in the place of single pipes with holes. The

	Hebrew.	*Greek.*	*Latin* (*Vulgate*).	*Syriac.*
CINNŎR	כִּנּוֹר	*κἴθάρα*	cĭthăra	ܩܝܬܪܐ
NĒBĚL	נֵבֶל	*ψαλτήριον*	psalterĭum	
NĒBĚL GHĀSŌR	נֵבֶל עָשׂוֹר	*ψαλτηρίῳ δεκαχόρδῳ*	"psalterium decem chordarum"	
KHĀLĪL	חָלִיל	*χορός* (*χορὸς καλάμων*)	tĭbĭa	
NĒKĒB	נֶקֶב		fŏrāmen (Ezek. xxviii. 13.)	
SHŌPHAR	שׁוֹפָר	*σάλπιγξ* / *κερατίνη*	buccĭna	
KHATSŌTSRĀH	חֲצֹצְרָה חֲצֹצְרָה	*σάλπιγξ*	tŭba	
KĚRĚN	קֶרֶן	*κέρας*	cornu	
GHUGĀB	עוּגָב	*ὄργἄνον*	orgănum	
TOPH Arab. دف	תֹּף	*τύμπἄνον*	tympănum	
TSĚLTS-LĪM	צֶלְצְלִים	*αὐλός*		(Pair of Cymbals.)
M'TSIL-TĀYIM	מְצִלְתַּיִם	(dual) *κυμβάλω-οιν*	sistra	(From נוּעַ, *to move to and fro, to oscillate.*)
MĂN-GHĂN-GHIM	מְנַעֲנְעִים		sistrum, *a triangle.*	
SHĀLĪSH	שָׁלִישׁ	*σεῖστρον*	fistŭla	(From שָׁרַק, *to whistle.* See Judges v. 16, where שְׁרִיקוֹת עֲדָרִים = the "pipings" [of those who kept] the flocks.)
MĂSHRŌKĪTHĀ	מַשְׁרוֹקִיתָא	*σῦριγξ*		
KĬTHRŌS	קִתְרוֹס	*κίθαρις*	cithara	
SABCĀ	סַבְכָא	*σαμβύκη*	sambuca	
PSĂNDHĒRIN	פְּסַנְתֵּרִין	*ψαλτήριον*	psalterium	(Called now in Egypt سنطير ; in the Bible وَٱلسِّنْطِير Dan. iii. 5.)
SŪ MPONYĀH	סוּמְפֹנְיָה	*συμφωνία*	symphonia	(Explained by Hebrew interpreters עוּגָב, or "organ.")

M

Daniel.

APPENDIX III.

PASSAGES IN WHICH MUSICAL INSTRUMENTS ARE MENTIONED IN THE BIBLE.

TEXT.	INSTRUMENTS MENTIONED.
Gen. iv. 21	Kinnor, Ugab.
Gen. xxxi. 27	Kinnor, Toph.
Exod. xv. 20	Toph.
Exod. xix. 16, 19; xx. 18	Shophar.
Num. x. 2, 8, 9, 10	Khatsotsrah.
Lev. xxv. 9	Shophar.
Josh. vi. 4, 5, 6, 8, 9, 13	Shophar, Keren.
Judg. iii. 27; vi. 34; vii. 8, 16, 18, 19, 20	Shophar.
Judg. xi. 34	Toph.
1 Sam. x. 5	Nebel, Toph, Khalil, Kinnor.
1 Sam. xiii. 3	Shophar.
1 Sam. xvi. 16, 23	Kinnor.
1 Sam. xviii. 6	Toph, Shalishim.
2 Sam. ii. 28	Shophar.
2 Sam. vi. 5	Kinnor, Nebel, Toph, Tseltslim, Menaaneim.
2 Sam. vi. 15; xv. 10; xviii. 16; xx. 1, 22	Shophar.
1 Kings i. 34, 39, 41	Shophar.
1 Kings i. 40	Khalil.
1 Kings x. 12	Kinnor, Nebel.
2 Kings ix. 13	Shophar.
2 Kings xi. 14; xii. 13	Khatsotsrah.
1 Chr. xiii. 8	Kinnor, Nebel, Toph, Tseltslim, Shophar.
1 Chr. xv. 16, 20	Nebel, Kinnor, Tseltslim.

1 Chr. xv. 21, 24, 28	Nebels on Alamoth, Kinnors on the Sheminith, Khatsotsrah, Shophar, Tseltslim, Nebel, Kinnor.
1 Chr. xvi. 5	Nebel, Kinnor, Tseltslim.
1 Chr. xvi. 6	Khatsotsrah.
1 Chr. xvi. 42	Khatsotsrah, Tseltslim.
1 Chr. xxv. 1, 3, 5, 6	Kinnor, Nebel, Keren, Tseltslim.
2 Chr. v. 12, 13	Tseltslim, Nebel, Kinnor, Khatsotsrah.
2 Chr. ix. 11	Kinnor, Nebel.
2 Chr. xiii. 12, 14	Khatsotsrah.
2 Chr. xv. 14	Shophar, Khatsotsrah.
2 Chr. xx. 28	Nebel, Kinnor, Khatsotsrah.
2 Chr. xxiii. 13.	Khatsotsrah.
2 Chr. xxix. 25, 26, 27, 28 . . .	Tseltslim, Nebel, Kinnor, Khatsotsrah.
Ezra iii. 10	Khatsotsrah, Tseltslim.
Neh. iv. 18, 20	Shophar.
Neh. xii. 27	Tseltslim, Nebel, Kinnor.
Neh. xii. 35. 41	Khatsotsrah.
Job xxi. 12	Toph, Kinnor, Ugab.
Job xxx. 31	Kinnor, Ugab.
Job xxxix. 24, 25	Shophar.
Psalm xxxiii. 2	Kinnor, Nebel Azor.
Psalm xlv. 8.	Minnim.
Psalm xlvii. 5	Shophar.
Psalm xlix. 4	Kinnor.
Psalm lvii. 8.	Nebel, Kinnor.
Psalm lxviii. 25	Kinnor.
Psalm lxxi. 22	Nebel, Kinnor.
Psalm lxxxi. 2	Nebel, Toph, Kinnor.
Psalm lxxxi. 3	Shophar.
Psalm xcii. 3	Nebel Azor, Kinnor.
Psalm xcviii. 5, 6	Kinnor, Nebel, Shophar, Khatsotsrah.
Psalm cviii. 2	Nebel, Kinnor.
Psalm cxxxvii. 2	Kinnor.
Psalm cxliv. 9	Nebel Azor.
Psalm cxlix. 3	Toph, Kinnor.
Psalm cl. 3	Shophar, Nebel, Kinnor.
Psalm cl. 4	Toph, (and *Machol*), Minnim, Ugab, Tseltslim (two kinds).

Isa. v. 12	Kinnor, Nebel, Toph, Khalil.
Isa. xiv. 11	Nebel.
Isa. xvi. 11	Kinnor.
Isa. xviii. 3	Shophar.
Isa. xxiii. 16	Kinnor.
Isa. xxiv. 8	Toph, Kinnor.
Isa. xxvii. 13	Shophar.
Isa. xxx. 29	Khalil.
Isa. xxx. 32	Toph, Kinnor.
Isa. lviii. 1	Shophar.
Jer. iv. 5, 19, 21 ; vi. 1, 17 . .	Shophar.
Jer. xxxi. 4	Toph.
Jer. xlii. 14	Shophar.
Jer. xlviii. 36	Khalil.
Jer. li. 27	Shophar.
Ezek. xxvi. 13	Kinnor.
Ezek. xxviii. 13.	Nekeb.
Ezek. xxxiii. 3, 4, 5, 6	Shophar.
Dan. iii. 5, 7, 10, 15	Keren, Mashrokith, Kithara, Sabeca, Psanterin, Symphonia.
Hosea v. 8	Khatsotsrah, Shophar.
Joel ii. 1, 15.	Shophar.
Amos ii. 2 ; iii. 6	Shophar.
Amos v. 23 ; vi. 5	Nebel.
Zeph. i. 16	Shophar.
Zech. ix. 14	Shophar.
Zech. xiv. 20	Tseltslim.
Matt. ix. 23	Aulos.
1 Cor. xiii. 1.	Kumbalon.
1 Cor. xiv. 7.	Aulos, Kithara.
Rev. i. 10 ; iv. 1 ; ix. 14 . . .	Salpinx.
Rev. v. 8 ; xiv. 2	Kithara.
Rev. xviii. 22	Kithara, Aulos, Salpinx.

APPENDIX IV.

ACCENTS OF THE HEBREW BIBLE.

1. Sĭllūk (end), only at the end of the verse, and always united with (׃) Sōph-pāsūk, which separates each verse.

2. Athnakh divides the verse into two halves, except in Job, Psalms, and Proverbs.

3. Sĕghōl'tā. ‡

4. Zākēph-kātōn.

5. Zākēph-gādhōl.

6. Tĭphkhā.

7. Rĕbhīgha.

8. Zărkā. ‡

9. Păshta. ‡

10. Yĕthīb. †

11. Thebīr.

12. Shălsheleth.

13. Tĭphkhā *initiale*. †

14. Pāzēr.

15. Kărnĕ-phārā.

16. Great Tĕlīshā. †

Distinctive Accents.

17.	(◌֫◌)	Gărĕsh.	Distinctive Accents.
18.	(◌֬◌)	*Double* Gărĕsh.	
19.	(|)	Pĕsīk (*between the words*).	
20.	(◌֒◌)	Mēr'khā.	Conjunctive Accents.
21.	(◌֜◌)	Mūnākh.	
22.	(◌֪◌)	*Double* Mēr'khā.	
23.	(◌֣◌)	Măhpăkh.	
24.	(◌֥◌)	Kădmā.	
25.	(◌֟◌)	Dărgā.	
26.	(◌֗◌)	Yārē'kh.	
27.	(◌֭◌)	*Little* Tĕlīshā.‡	
28.	(◌֑◌)	Tĭphchā *final.*	
29.	(◌֒◌ 2)	Mēr'khā *with* Zărkā.	
30.	(◌֣◌ 2)	Măhpăkh *with* Zărkā.	

Accents marked † are *prepositive, i.e.*, stand only on first letter of a word.

Accents marked ‡ are *postpositive, i.e.*, stand only on last letter of a word.

The line in brackets thus (——) is used instead of a Hebrew word, and to show the position of the accents above or below the line.

For fuller information on the accents see

Driver's *Tenses in Hebrew*, pp. 109—124.

Davidson's *Outlines of Hebrew Accentuation.* (Edinburgh, 1861.)

Gesenius' *Hebrew Grammar*, twenty-first German edition by E. Roediger, Ph.D., and B. Davies, LL.D.

Ewald, *Ausführliches Lehrbuch der Hebräischen Sprache*, secs. 95—100.

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